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BETTER FRUIT

VOLUME VII

FEBRUARY, 1913

NUMBER 8



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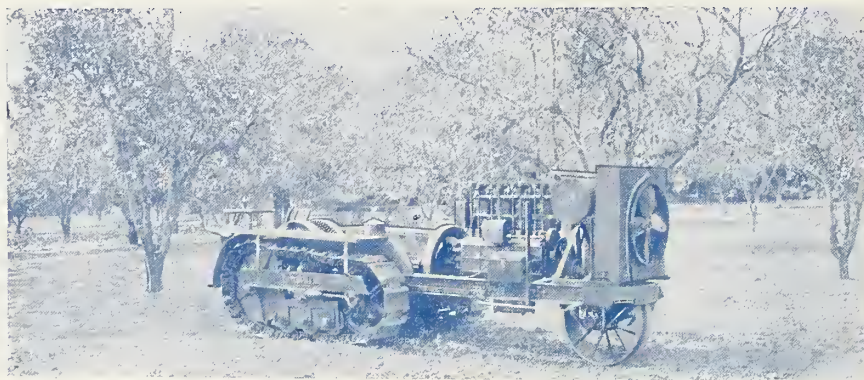
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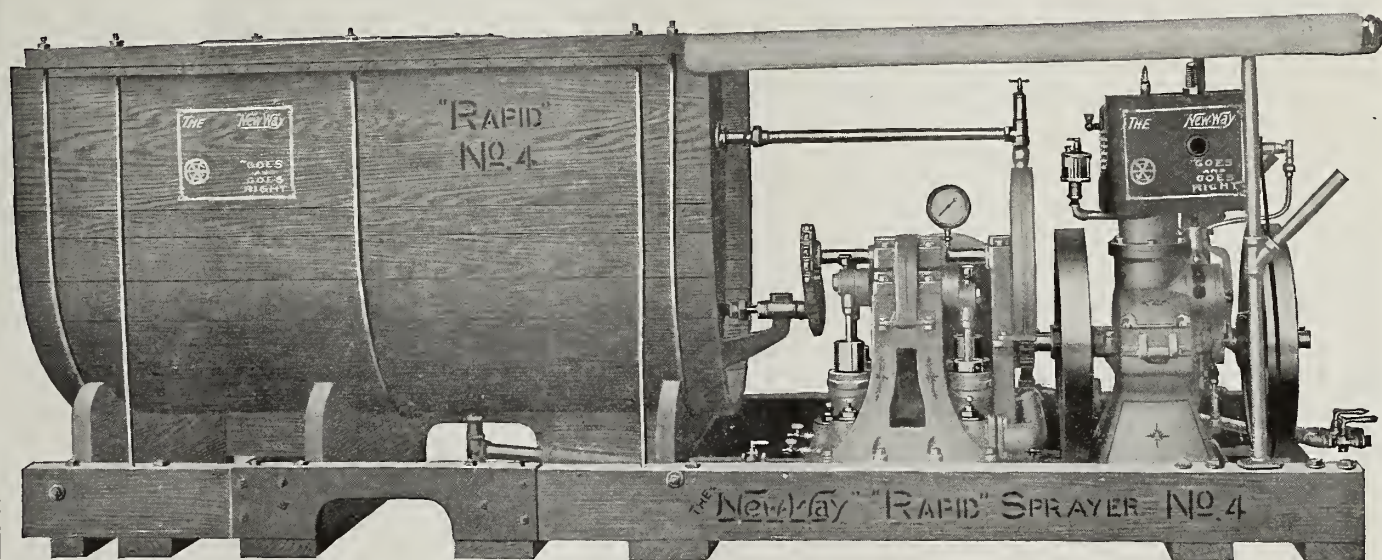
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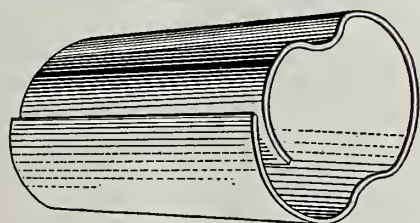
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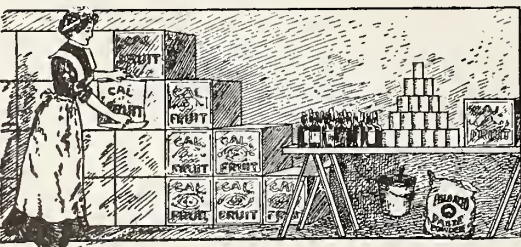
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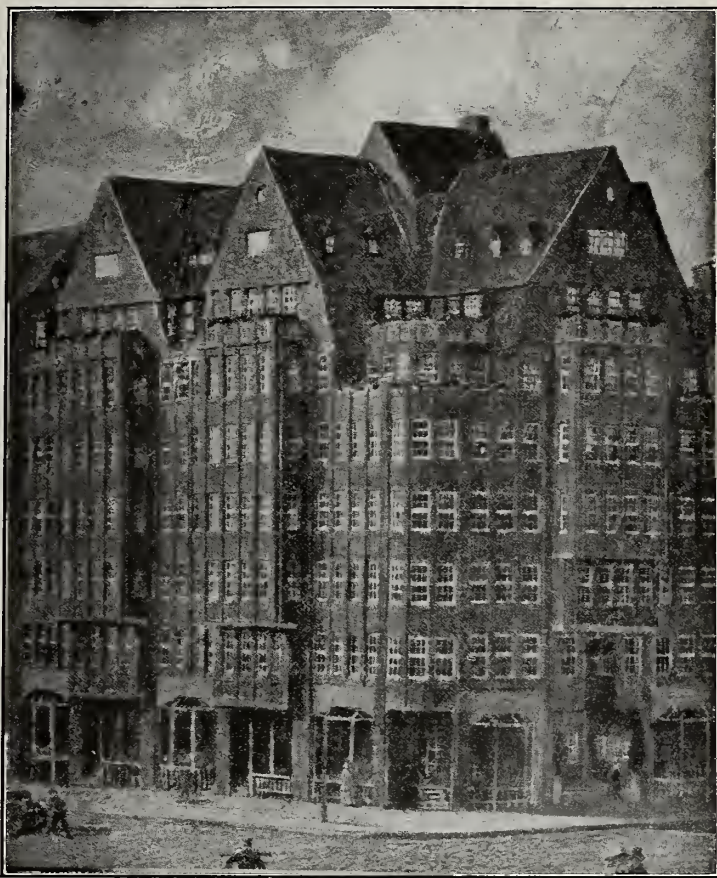
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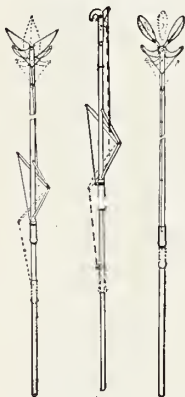
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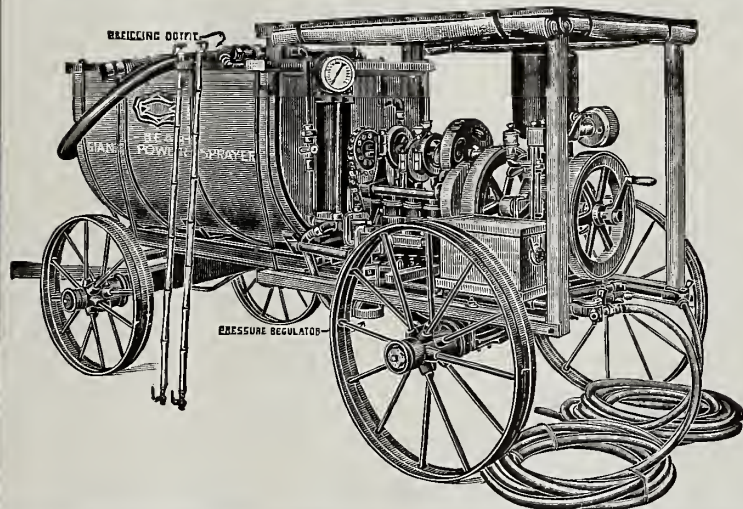
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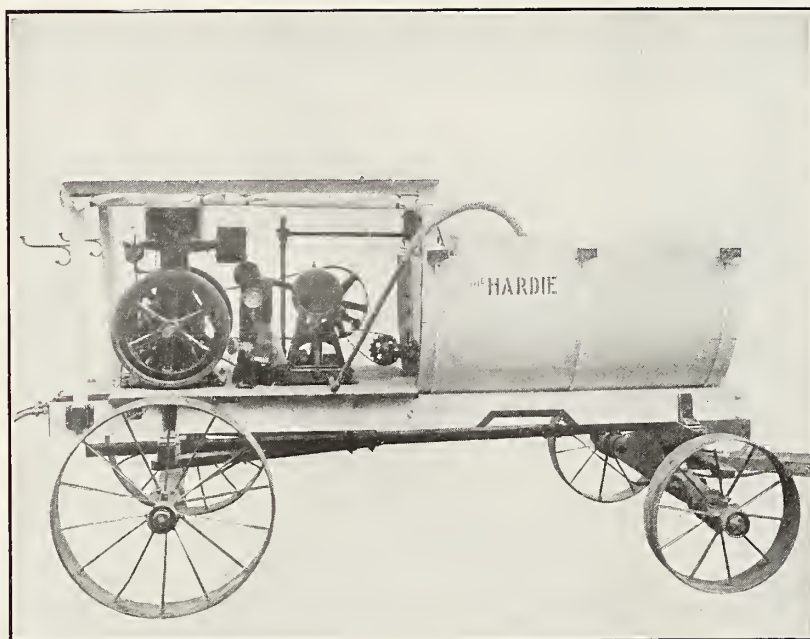
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BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

The Fifth National Apple Show, 1912, Spokane

By R. S. Phillips, Spokane News Bureau

WHEN the directors of the Spokane National Apple Show faced the task of 1912 they looked back over four years of successful shows—all of them large in plan and productive of results. A glance into the past showed them that definite results had been obtained. The apple had been popularized as the world's fruit; growers had benefited remarkably in solving their cultural problems; a cleaner and a better fruit, and in larger quantities, had come; the Western apple had been given a place by the world second to none. "What more could be done?" someone asked. "Show the grower how to market his product in such a way that his returns will be adequate and the price to the consumer will be reduced," came the answer. It was the only answer that could be given. So the board of trustees set about the task. With only two months in which to have exhibitors make ready, they finally coaxed Mr. H. C. Sampson to shoulder the burden. As education was to be the keynote of the fifth National Apple Show, their choice proved to be most fortunate, for Mr. Sampson brought to the task many years of educational experience, combined with a thorough training in large business affairs, as well as wide knowledge of orchardry. Added to a large acquaintance with men and conditions in the Northwest, these qualifications proved a happy combination for making an apple show.

Since it was agreed that the fifth National Apple Show, besides assembling the pride of the nation's orchard product, should be the means of solving the problems of marketing, of storage, of financing, of transportation and of saving the poorer grades of apples, Mr. Sampson commenced to interest growers, bankers, by-product manufacturers, business men, railway officials and experts in all phases of the business in a series of daily conferences to be held during the apple show. These conferences fulfilled their mission. Every day during the six week days of the show men of brains and practical experience in the apple business gathered to discuss the problems mentioned above. Never in the history of the apple industry has such a wide variety of knowledge been amassed as was told by these men out of their experiences in the past and their thoughts and plans for the future. Out of the mass of things said at these conferences a few stand out pre-eminently important. First, there must be organization between the various apple-growing districts in the matter of distribution; sec-

Features of this Issue

PACIFIC NORTHWEST LAND PRODUCTS SHOW, PORTLAND

FIFTH NATIONAL APPLE SHOW SPOKANE, WASHINGTON

THE APPLE ANNUAL, WATSONVILLE CALIFORNIA

INDIANA APPLE SHOW

A REVIEW OF RECENT EXPERIMENT STATION BULLETINS

THE NEED OF ECONOMY IN SPRAYING

TWO ARTICLES ON CUTTING BACK

ond, adequate storage facilities for a goodly proportion of the crop must be provided on the farm, at the initial shipping point, and at a storage-in-transit center, such as Spokane; third, plants must be provided to make commercially valuable the poorer grades of fruit; fourth, growers must have means of financing their crops, and fifth, adequate transportation charges should be had. Not only the growers, but the public generally, were awakened to the

needs of the industry as a result of these conferences. It has long been known that the Pacific Northwest can produce the finest apples in large quantities. These conferences demonstrated the necessity for co-operation if adequate returns are to be realized.

Waldo G. Paine, vice-president and traffic manager of the Spokane & Inland Empire Railroad, stated the case accurately and concisely when he said: "The apple districts of the East and Middle West are making capital of our lack of marketing facilities. They are close to the market, and find no trouble in this particular. It is our only vulnerable point. Once we present a solid fighting front by marketing sensibly there will be no avenue of attack left." That the show had its effect in arousing consciousness of the necessity for businesslike procedure in the apple industry there can be no doubt. All concerned seem to be agreed that the time is ripe for action. What this action will be the near future will see developed. From the very beginning, the fifth National Apple Show proved successful, the opening exercises being most auspicious. With Robert E. Strahorn, vice-president of the Oregon-Washington Railroad & Navigation Company and president of the apple



Booth of the Oregon-Washington Railroad & Navigation Company, presided over by Professor C. L. Smith, who is shown on the left in the picture. Fifth National Apple Show, 1912.



Indian Tepee made of Apples and Reproduction of Miss Spokane. Winner of second prize of \$100 among the most original and attractive displays made by individuals. Entered by Mrs. Edith Proudft, Fairfield, Washington. The Miss Spokane figure, with the exception of the face and arms, is made entirely of apples, the costume being of dried apples. Fifth National Apple Show, 1912.

show, presiding, the show was opened formally by Governor Marion E. Hay of Washington. Madame Johanna Gadski, world-famous soprano, sang at the ceremony.

In his address President Strahorn said that at the present rate of planting it will be but a few years when the Yakima Valley will produce 25,000 carloads, the Rogue River Valley an equal amount. Apple production in the United States, he said, which declined from nearly 70,000,000 barrels in 1896 to about 22,000,000 in 1909, is steadily on the upgrade, reaching over 25,000,000

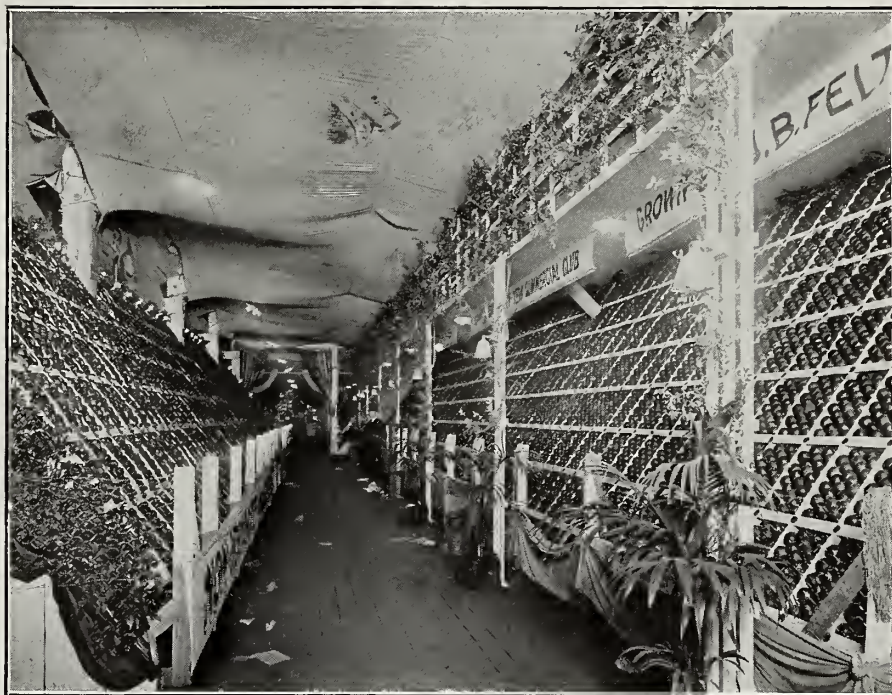
barrels in 1911, and approximately 40,000,000 to 45,000,000 barrels this year. Mr. Strahorn touched on the need of absorbing the surplus of the future, saying there is just as much logic in advertising the apple as breakfast foods. He declared that apple-producing districts should engage to the same extent as California in canning and drying fruits, noting that a large share of that state's fruits are imported and eaten in this section of the country. Referring to means of conserving the product he said: "With broader experience, more care in putting up the product and bet-

ter methods in selling we are amply demonstrating the success of canneries and evaporators as a means of extending our markets. The Lewiston canning plant this season has an output of more than 1,000,000 cans of cull fruit. The Puyallup Valley Growers' Association has a plant covering three and one-half acres, employing 120 people, and this season had an output of more than three-fourths of a million dollars. By means of their plant they have raised the price of green stuff from 60 cents to \$1.60 a crate. Ellensburg has just started an evaporating plant of good capacity. Yakima has also established an evaporating plant. Farmington has a vinegar plant making 50 barrels a day; Pullman a vinegar plant. Corvallis and Eugene have made great successes of co-operative canning plants. I was advised the other day that an Eastern manufacturer of fruit juices and syrups would establish a large plant wherever 500 acres of berries would be added to existing orchards within a given radius. Cannot these institutions be reproduced in every village, town and hamlet in the fruit-growing sections of the Pacific Northwest? Does it not mean more extensive cultivation, more capital invested, more people employed and the conservation of fruit that would otherwise go to waste, as well as contribute largely to the solution of the marketing problem?"

Regarding the storage problem, President Strahorn said: "There are very few large cold storage plants in the territory west of the Missouri River. The Northwestern apple grower figures on moving his crop before the holidays, recognizing that it is dangerous to ship after that period because of the frost. This means often glutting the market, and always loss. It is, therefore, apparent that if there were storehouses provided near orchards the apples could be protected at initial points and shipped as ordered, or shipments could be made when consumption is greatest, and market conditions are satisfactory, even sometimes delayed till spring months. I believe that at least one-fourth of the storage should be at the orchard and owned by growers or groups of growers; another fourth at the initial point, or nearby, where satisfactory arrangements can be made, by private capital. Then another one-fourth could be stored in transit, as at Spokane or Portland, either by private capital or by semi-private capital, fostered by the chamber of commerce or clearing house associations, in order to make the in-transit city play a larger part in that part of the apple industry tributary to that city. This leaves one-fourth of the fruit to be sold outright, or to be stored in the East. The question of home storage is, in my judgment, the most important phase of the apple industry at the present time. The railroads will not only substantially co-operate through storage-in-transit rates but in liberal reductions and arrangements for delivering the raw product through

the cannery to the ultimate market of by-products."

From the standpoint of beauty of exhibits, the fifth National Apple Show is believed to have distanced its predecessors. Great care had been given to this feature, and a number of attractive exhibits was the result. Otis Orchards Commercial Club of Washington won first prize for the most original and attractive display made by a district, association, lodge, society, county or union, second honors going to the Opportunity-Vera (Washington) Commercial Club. The Otis Orchards display was a huge fountain of white, the water being represented by apples. A very unique display was a model from a church on Moran Prairie, near Spokane. This was made entirely of apples. Still another apple design was an Indian wigwam, with a reproduction of Miss Spokane (a young woman chosen to represent this city) standing nearby. There were many others, too, that attracted more than ordinary interest. The carload contests, entries for which gave large bulk to the show, attracted sixteen exhibits. Mrs. W. S. Fullerton of Otis Orchards, in the Spokane Valley, won first prize in Wageners, as well as the \$300 prize for best pack. The trustees had abolished the quality rating of variety against variety, every carload entered competing only against every other carload of the same variety. Thus a carload exhibitor could win a \$300 first prize and the \$300 prize for pack and an additional \$150 for the most artistically decorated carload. The last named award was won by the Opportunity-Vera (Washington) Commercial Club, the same car winning first in the Jonathan variety. Other carload winners will be found in the prize list given elsewhere. As in past years, the world's championship



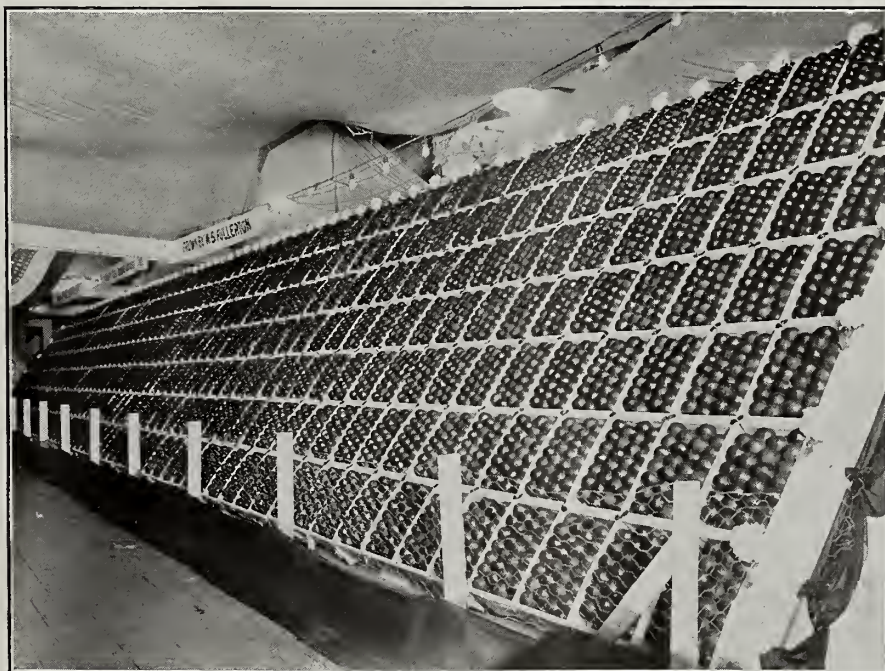
Two Carloads from the Spokane Valley. On the right is the Opportunity-Vera car, grown by J. B. Felts, winner of first prize for Jonathans and first prize for carload decoration. This car won \$450 in cash and a National Apple Show gold medal banner. On the left is a carload of non-irrigated Wageners entered by Walter Enright, Chester, Washington, winner of second prize of \$100 and National Apple Show silver medal banner in the Wagener contest. Fifth National Apple Show, 1912.

apple-packing contest excited wide interest, Charles Mason of Spokane winning first prize. Mr. Mason was the champion two years ago, and last year won second place. J. C. Goodner of Otis Orchards got second place, with J. S. McPherson of Zillah, Washington, third.

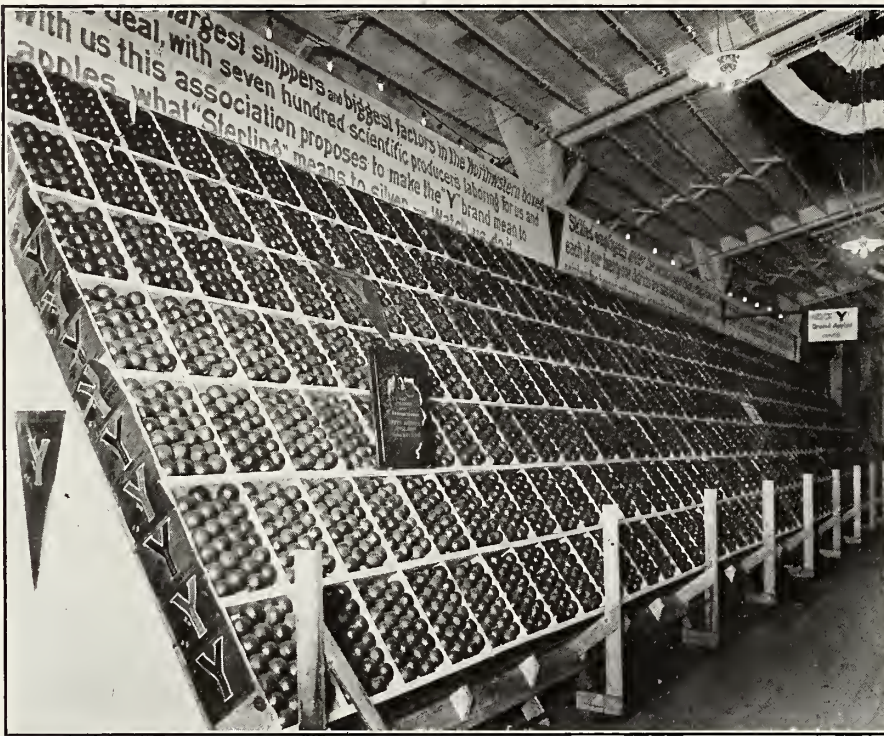
There was fun galore at the fifth National Apple Show. The Mystic Order of Enakops, an organization of Spokane and Inland Empire "live wires," started out with the slogan "Keep the pot boiling." Visitors declare that they suc-

ceeded. The most spectacular feature of their program was a daily "Apple Pie-fest," fully 50,000 "pies like mother used to make" being given away free during the show. Apples, 500 bushels at a time, were cooked into sauce in a huge kettle eighteen feet high, ten feet in diameter, and weighing 3,500 pounds. From there they went between crusts and into the most remarkable baking oven ever constructed. This oven is seventy-five feet long and turns out pies at the rate of 2,250 per hour. The pies are carried through the gas-heated oven, which is about three feet in width, on an endless chain, their journey requiring three minutes. They emerged at the exit steaming hot and were served to the public by well-known business men of Spokane, who are members of the Mystic Order of Enakops. This novel institution was originated by Lew S. Hurtig of Spokane, who, with Jacob Schiffner, Imperial Kopsan of the order, had charge of the amusement features of the show. Band and orchestra concerts were given daily at the show by Reemer's National Apple Show Band of forty pieces. Clean vaudeville numbers rounded out the entertainment features, together with a series of splendid folk-songs and dances characteristic of the various nations.

Judging of exhibits started the moment the show opened, and the work of the board of five judges elicited many words of commendation. Professor C. P. Close, expert in fruit standardization and identification in the pomological division of the United States Department of Agriculture, was chairman of the board of judges, his associates being Professor Albert Dickens, head of the Department of Horticulture University of Kansas; Professor



Carload of Wageners grown by W. S. Fullerton, Otis Orchards, Washington. Winner of first prize among the Wageners of \$300 cash and National Apple Show gold medal banner and winner of championship carload for pack, for which the prize was \$300 cash and National Apple Show loving cup. Fifth National Apple Show, 1912.



Carload of Spitzbergs grown in the Yakima Valley by J. H. Estes, Zillah, Washington. Winner of first prize of \$300 cash and National Apple Show gold medal banner in the Spitzbergen variety. Fifth National Apple Show, 1912.

W. S. Thornber, chief horticulturist of the Lewiston-Clarkston School of Horticulture; James Gibb, Kelowna, British Columbia, and C. J. Sinsel, Boise, Idaho.

Added importance attached to this year's apple show, because of the presence in Spokane of prominent farmers from all parts of the United States, gathered for the annual convention of the National Grange, November 13 to 23. The display of Pacific Northwest apples opened the eyes of the Easterners, calling forth many expressions of wonderment over the color, size and quality of the fruit. Besides attending individually, the Grange gave over an entire afternoon to its members for the purpose of viewing the exhibits. Another meeting of importance held in Spokane during the show was participated in by real estate dealers from various parts of the Inland Empire, who assembled to form an association, at the call of Carl L. Shuff, president of the Spokane Realty Board. The Inland Empire Federation of Commercial Clubs also had its annual meeting in the apple-show city. The second annual packing school proved a big drawing card, instruction in this art being given to large numbers daily. The school was directed by J. M. Carroll of Mosier, Oregon.

The fifth National Apple Show was staged at the capacious and beautiful Interstate Fair grounds, through the courtesy of the fair management. A temporary building was erected to connect the large main building with the automobile and mineral halls and a huge tent housed the amusement features and the "Apple Pie-fest." Exclusive of the tent, 44,000 square feet of floor space were used for exhibition purposes. The huge V-shaped racks holding the carload exhibits were

placed in the long rectangular halls, the effect being most pleasing to the eye.

A successful departure from former shows was the creation of a board of governors, composed of leading men from the various apple districts of the Pacific Northwest. On this board were: Governor M. R. Hay, Washington; Governor Edwin L. Norris, Montana; Governor James H. Hawley, Idaho; Right Hon. Sir Richard McBride, premier British Columbia; Lieutenant-Governor W. P. Patterson, British Columbia; Hon. Price Ellison, minister of agriculture, British Columbia; W. K. Newell, president State Board of Horticulture, Gaston, Oregon; W. T. Jackson, Stevenson,

Washington; Mike Horan, Wenatchee, Washington; R. P. Wright, Chelan, Washington; I. S. Nelson, Coeur d'Alene, Idaho; A. P. Bateham, Mosier, Oregon; C. W. H. Heideman, Bonners Ferry, Idaho; H. W. Sterett, Northport, Washington; E. C. Burlingame, Walla Walla, Washington; J. D. Taggard, Waitsburg, Washington; W. S. Thornber, Lewiston, Idaho; P. L. Orcutt, Moscow, Idaho; J. L. Dumas, Pullman, Washington; S. E. Kelsey, Opportunity, Washington; N. S. Tichenal, Cashmere, Washington; W. C. Muldrow, Okanogan, Washington; W. N. Irish, North Yakima, Washington; W. S. Rawn, Prosser, Washington; H. M. Gilbert, Toppenish, Washington; W. T. Clark, Wenatchee, Washington; Ralph Ordway, White Salmon, Washington; F. A. Huntley, state horticultural commissioner, Tacoma, Washington; J. W. McPherson, state horticultural commissioner, Boise, Idaho; M. L. Dean, state horticultural commissioner, Missoula, Montana; E. A. Bryan, president State College, Pullman, Washington; James A. MacLean, president State College, Moscow, Idaho; W. J. Kerr, president Agricultural College, Corvallis, Oregon; James M. Hamilton, president Agricultural College, Bozeman, Montana; George De Betlyon, Otis Orchards, Washington; J. H. Robbins, North Yakima, Washington; Charles Pope, Ashland, Oregon; W. H. Doolittle, Ontario, Oregon; James Spiers, Kaslo, British Columbia; F. R. E. De Hart, Kelowna, British Columbia; H. J. O'Gorman, Baker City, Oregon; Matt Hickey, Cashmere, Washington; Fred Carlyle, Kettle Falls, Washington; W. T. Burns, Moscow, Idaho.

Officers actively in charge were: Robert E. Strahorn, president; William T. Day, chairman board of trustees; H. C. Sampson, vice-president and general manager; Harry J. Neely, vice-president, and Adolph Galland, treasurer. The following business men of Spokane composed the board of direc-



Oven seventy-five feet long, which baked fifty thousand apple pies during the National Apple Show, turning out pies at the rate of twenty-two hundred and fifty per hour. Pies were carried through on an endless chain, and were served free to the public. Fifth National Apple Show, 1912.

tors: W. T. Day, Samuel Galland, Gordon C. Corbaley, Harry J. Neely, David Brown, Guy Seaton, H. A. Flood, J. C. Barline, S. Barghoorn, W. H. Cowles, H. H. McLane, Ren H. Rice, C. Herbert Moore, R. H. Cosgrove, C. R. Loneragan.

Hardly had the curtain fallen, bringing the 1912 show to a close, when the directors announced their intention of holding the show in 1913, with many extended features. Plans are being made for building a large municipal building, in which apple shows of the future may be held, in common with other large events of public importance. The list of prize winners at this year's show follows:

CARLOAD CONTESTS

Jonathan—First prize, \$300 cash and National Apple Show gold medal banner, J. B. Felts, grower, displayed by Opportunity-Vera Commercial Club.

Spitzenberg—First prize, \$300 cash and National Apple Show gold medal banner, J. H. Bates, Zillah, Washington.

Wagener—First prize, \$300 cash and National Apple Show gold medal banner, Mrs. W. S. Fullerton, Otis Orchards, Washington; second prize, \$100 cash and National Apple Show silver medal banner, Walter Enright, Chester, Washington.

Winesap—First prize, \$300 cash and National Apple Show gold medal banner, T. E. Black, Wenatchee, Washington.

Yellow Newtown—First prize, \$300 cash and National Apple Show gold medal banner, R. Morris, Zillah, Washington.

General Varieties—First prize, \$300 cash and National Apple Show gold medal banner, Mrs. I. C. McIndoe, Prosser, Washington; second prize, \$100 cash and National Apple Show silver medal banner, F. A. Wingate, Peshastin, Washington.

Mixed Carload—First prize, \$300 cash and National Apple Show gold medal banner, J. C. Bowen, Hunters, Washington; second prize, \$100 cash and National Apple Show silver medal banner, C. G. Hayton, Moscow, Idaho.

Championship Carload Pack among all carloads entered in competition—Prize, \$300 cash and National Apple Show loving cup, won by Mrs. W. S. Fullerton, Otis Orchards, Washington.

Carload Decoration—For the most artistically decorated carload of all those entered in competition, prize, \$150 cash, won by Opportunity-Vera Commercial Club, Washington.

TEN-BOX CONTESTS

Arkansas Black—First, \$40 cash, A. J. Lindville, Wenatchee, Washington; second, \$20 cash, Olsen & Nugent, Granger, Washington.

Baldwin—First, \$40 cash, K. C. Fullerton, Otis Orchards, Washington; second, F. G. Farquhar, Needles, British Columbia.

Black Ben Davis—First, \$40 cash, F. A. Wingate, Peshastin, Washington; second, \$20 cash, Keystone Fruit Company, Entiat, Washington.

Delicious—First, \$40 cash, J. B. Coulee, Chelan, Washington; second, \$20 cash, O. B. Brown, Wenatchee, Washington.

Grimes Golden—First, \$40 cash, Charles Biery, Wenatchee, Washington; second, \$20 cash, John Bengel, Spokane, Washington.

Jonathan—First, \$40 cash, Thomas Hooker, Spokane, Washington; second, \$20 cash, Keystone Fruit Company, Entiat, Washington.

Northern Spy—First, \$40, John F. Thompson, Moscow, Idaho.

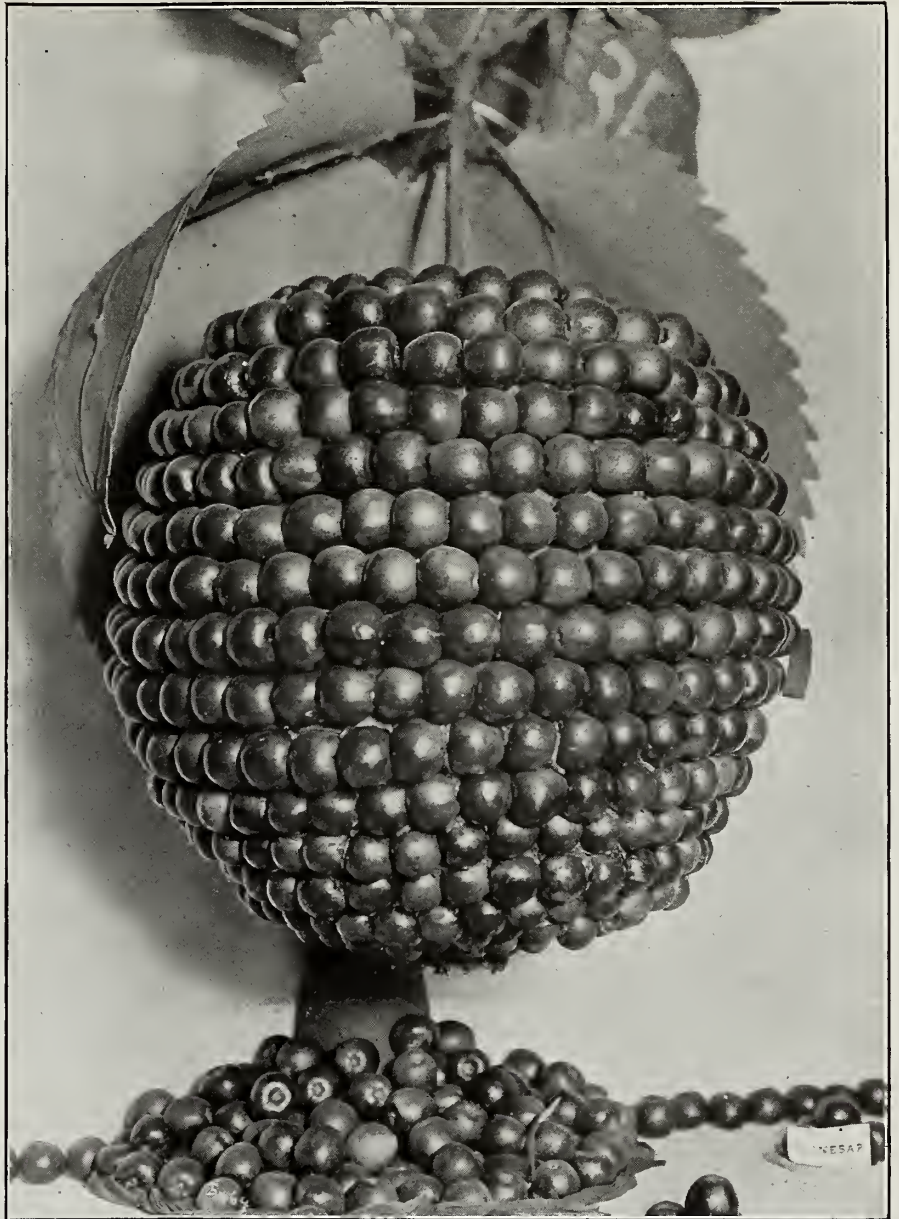
Rhode Island Greening—First, \$40, cash, C. M. Lockwood, Opportunity, Washington; second, \$20 cash, C. L. Green, Wenatchee, Washington.

Rome Beauty—First, \$40 cash and 250 Rome Beauty trees, donated by Milton Nursery Company, Milton, Oregon, J. B. Schons, Wenatchee, Washington; second, \$20 cash and 250 Wagener trees, donated by Milton Nursery Company, Milton, Oregon, William G. Bedtelon, Otis Orchards, Washington.

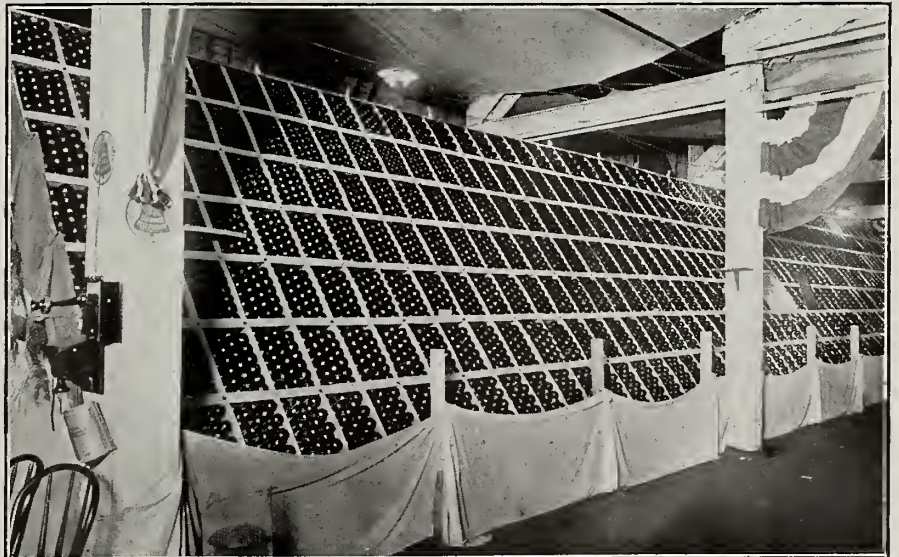
Spitzenberg—First, \$40 cash, William Tedford, Wenatchee, Washington; second, \$20 cash, Keystone Fruit Company, Entiat, Washington.

Stayman Winesap—First, \$40 cash, C. L. Green, Wenatchee, Washington; second, \$20 cash, F. A. Wingate, Peshastin, Washington.

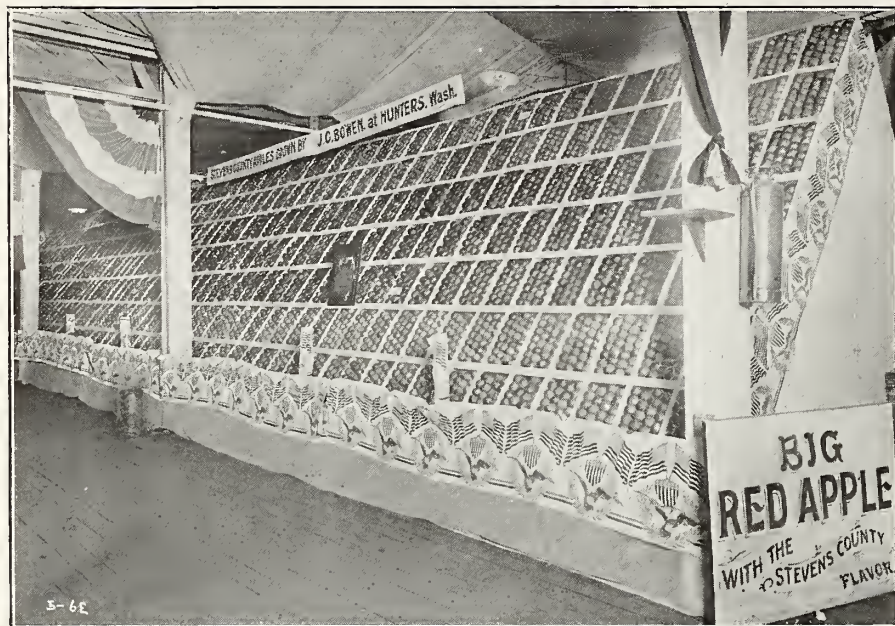
Winter Banana—First, \$40 cash and 500 Yellow Newtown trees, donated by the Washington Nursery Company, Toppenish, Washington, Tre-Dinnock Farm, Belair, Washington; second, \$20 cash, E. C. Huff, Wenatchee, Washington.



Huge Apple made from Apples. Winner of \$50 prize in the individual display. Entered by the Premier Fruit Company. Fifth National Apple Show, 1912.



Carload of Arkansas Blacks entered by Mrs. I. C. McIndoe, Prosser, Washington. Winner of first prize in the general varieties contest, amounting to \$300 cash, and National Apple Show gold medal banner. Fifth National Apple Show, 1912.



Carload of Stevens County Apples grown by J. C. Bowen, Hunters, Washington. Winner of first prize among the mixed carloads. Fifth National Apple Show, 1912.

Wagener—First, \$40 cash, Walter Enright, Chester, Washington; second, \$20 cash, W. T. Robbins, Mead, Washington.

Winesap—First, \$40 cash and 100 pounds spraying material, donated by A. B. Ansbacher & Company of New York, through Morgan McKaig & Company, North Yakima, Washington; second, \$20 cash, J. D. Laughlin, Zillah, Washington.

White Winter Pearmain—First, one \$75 Quick Action Malleable Range, with the wonderful grate-lifting device, offered by the Standard Furniture House, Inc., 315-319 Riverside Avenue, Spokane, Washington, John Howard, Otis Orchard, Washington; second, \$20 cash, C. E. Hewett, Wenatchee, Washington.

Gravenstein—First, \$40 suit of clothes, donated by Groff Tailors, Spokane, Washington, E. P. Palmer, Viola, Idaho.

FIVE-BOX CONTESTS

Black Twig—First, \$25 cash and 500 standard apple trees, given by the Yakima Valley Nursery Company, Toppenish, Washington; second, \$15 cash, C. L. Green, Wenatchee, Washington.

Ben Davis—First, \$25 cash and 500 standard apple trees, given by the Vineland Nursery Company, Clarkston, Washington, Tedford Brothers, Wenatchee, Washington; second, \$15 cash, J. B. Schons, Wenatchee, Washington.

Delicious—First, \$25 cash and 500 standard apple trees, given by the Oregon Nursery Company, Orenco, Oregon, H. E. Miller, Chelan, Washington; second, \$15 cash, T. Rothen, Trinidad, Washington.

Gravenstein—First, \$25 cash and 500 standard apple trees, given by the Tom Kelly Nursery, Wapato, Washington, M. Stewart, Summerland, British Columbia; second, \$15 cash, F. C. Farquier, Needles, British Columbia.

Jonathan—First, \$25 cash and 75 Jonathan trees, donated by the Carlton Nurseries Company, Carlton, Oregon, William Tedford, Wenatchee, Washington; second, \$15 cash and 25 Jonathan trees, donated by the Carlton Nurseries Company, Carlton, Oregon, M. Stewart, Summerland, British Columbia.

McIntosh Red—First, \$25 cash, L. C. Woodworth, Summerland, British Columbia; second, \$15 cash, Opportunity-Vera Commercial Club, Washington.

Rome Beauty—First, \$25 cash, J. B. Schons, Wenatchee, Washington; second, \$15 cash, G. Bedtelyon, Otis Orchards, Washington.

Spitzenberg—First, \$25 cash, Tedford Brothers, Wenatchee, Washington; second, \$15 cash, Keystone Fruit Company, Entiat, Washington.

Tompkins King—First, \$25 cash, R. A. Jones, Hillyard, Washington.

Wagener—First, \$25 cash, Walter Enright, Chester, Washington; second, \$15 cash, K. C. Fullerton, Otis Orchards, Washington.

Winesap—First, \$25 cash, Tedford Brothers, Wenatchee, Washington; second, \$15 cash, Mrs. I. C. McIndoe, Prosser, Washington.

White Winter Pearmain—First, \$25 cash, J. D. Laughlin, Zillah, Washington; second, \$15 cash, P. W. Lawrence, Wenatchee, Washington.

Yellow Bellflower—First, \$25 cash, William Tedford, Wenatchee, Washington; second, \$15 cash, R. A. Jones, Hillyard, Washington.

Northern Spy—First, \$25 cash, John Bengel, Spokane, Washington; second, \$15 cash, H. E. Curtis, Sharon, Washington.

Best five boxes McIntosh Red, packed in Bilingsley Box Company's boxes, \$50 cash, won by Opportunity-Vera Commercial Club, Washington; for best five boxes Northern Spy, packed in same kind of boxes, \$50 cash, won by John Bengel, Spokane.

Best Five Boxes Winter Banana—\$25 cash and J. C. Pearson Company silver shield, won by C. H. Stafford, Otis Orchards, Washington.

Highest Scoring Five Boxes—First, \$25, Tedford Brothers, Wenatchee, Washington; second, \$5, Tedford Brothers, Wenatchee, Washington.

Yellow Newtown—First, \$25 cash, J. B. Schons, Wenatchee, Washington; second, \$15 cash, C. B. Sawyer, Greenacres, Washington.

GENERAL DISTRICT DISPLAYS

Best general collective display of apples on irrigated land, shown by commercial clubs, associations, unions, counties or districts—First prize, \$100 cash and National Apple Show gold medal banner, won by Opportunity-Vera Commercial Club, Washington.

Best general collective display of apples grown on non-irrigated land, shown by commercial clubs, associations, unions, counties or districts—First prize, \$100 cash and National Apple Show gold medal banner, Skamania County (W. T. Jackson, manager); second prize, \$50 cash and National Apple Show silver medal banner, Cheney Commercial Club.

International Apple Shippers' Prize—For the best display from any individual grower of one box each of extra fancy and choice of any variety, first prize, \$25 cash and silver cup, presented by the International Apple Shippers' Association, won by G. Bedtelyon, Otis Orchards, Washington.

Improved Appliances—Most practical and economical appliance for use in planting, cultivating, caring for, picking, packing or marketing apples, first prize, gold medal design, C. E. Hewett, Wenatchee, Washington; second, silver medal design, Superior Tree Protector Manufacturing Company, Bridgeport, Washington.

O.-W. R. & N. Silver Trophy Cup—For best 10 boxes grown along O.-W. R. & N. lines, won by J. D. Laughlin, R. F. D. No. 1, Zillah, Washington; Winesaps exhibited.

Great Northern Silver Trophy Cup—For best 10 boxes grown along Great Northern lines, won by J. B. Schons, Wenatchee, Washington; Rome Beauties exhibited.

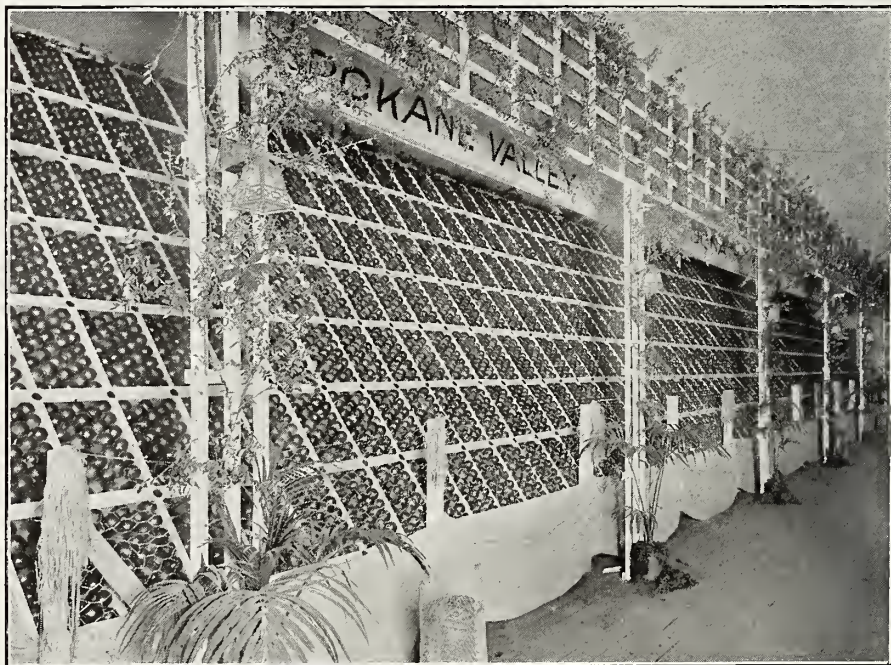
Original and Attractive Displays—By an organization, first prize, \$200 cash, Otis Orchards Commercial Club; second prize, \$100 cash, Opportunity-Vera Commercial Club. By an individual, first prize, \$200 cash, F. B. Wright, Spokane; second prize, \$100 cash, Mrs. Edith Proudfit, Fairfield, Washington.

Prizes for Whoppers—Fifty biggest apples, first, \$50 cash, Mrs. L. H. Spader, Chelan, Washington; second, \$15 cash, Fred L. Post & Sons, Chelan, Washington; third, \$10 cash, Opportunity-Vera Commercial Club, Washington. Five biggest apples, first, \$15 cash, Richard Ball, Methow, Washington; second, \$8 cash, O. A. Hoag, Chelan, Washington. Biggest single apple, first, \$10 cash, Tre-Dinnock Farm, Belair, Washington.

Best Keeper—Best five apples, any variety, preserved longest without acid or other means except cellars or cold storage, prize, specially designed gold medal banner, W. B. Munch, Wenatchee, Washington.

Apple Pies—First prize, \$5 cash and \$12 cut-glass fruit bowl, given by Murgiltroyd's, Spokane, Grace Duff, Kiesling, Washington; second, \$3 cash, Mrs. Carl Partridge, Spokane; third, \$2 cash, L. T. Farley, Spokane; fourth, \$1 cash, Mrs. Dixie S. Reynolds, Kiesling, Washington.

Best Plate Exhibit, Five Varieties—First, \$25 cash and "Fruit Cleaner" machine, donated by the Enterprise Fruit Machine Company, Zillah, Washington, Roy Farwell, Wenatchee; second, \$12.50 cash and one barrel Blanchard spray, Burrill Orchard Company of North Yakima, Washington; third, \$5 cash, C. M. Lockwood, Opportunity, Washington.



Prize-winning Carload of Jonathans, grown by J. B. Felts and displayed by the Opportunity-Vera Commercial Club. This car won first prize for Jonathans, \$300 cash and the National Apple Show gold medal banner, as well as the \$150 prize for most artistic carload decoration. Fifth National Apple Show, 1912.

HOME-MADE BY-PRODUCTS

Best Unflavored Apple Marmalade—First, \$5 cash, Mrs. Joseph Break, Spokane; second, \$3 cash, Mrs. J. W. Lipe, Clarkston, Washington; third, \$2 cash, Miss R. E. Stewart, Spokane.

Best Unflavored Crabapple Jelly—First, \$5 cash, L. L. Parker, Buckeye, Washington; second, \$3 cash, Mrs. Elmer Doty, Spokane; third, \$2 cash, Mrs. C. M. Lockwood, Opportunity, Washington.

Best Unflavored Preserved Apple—First, \$5 cash, Roy Farwell, Wenatchee, Washington; second, \$3 cash, C. M. Green, Spokane; third, \$2 cash, Mrs. F. T. Dodge, Kiesling, Washington.

Best Unflavored Apple Butter—First, \$5 cash and a \$25 basket of candy, awarded by The Palm, Spokane, Miss R. E. Stewart, Spokane; second, \$3 cash, Mrs. L. T. Farley, Spokane; third, \$2 cash, Mrs. A. H. Schafer, Chester, Washington.

Best Pickled Apples—First, \$5 cash, J. F. Van Horn, Kiesling, Washington; second, \$3 cash, Mrs. W. E. Talmadge, Sharon, Washington; third, \$2 cash, Miss R. E. Stewart, Spokane.

Best Apple Cider—First, \$5 cash, Mrs. J. S. Fisher, Spokane; second, \$3 cash, Mrs. Joseph Break, Spokane; third, \$2 cash, Mrs. J. W. Lipe, Clarkston, Washington.

Best Candied Apple—First, \$5 cash, Grace Duff, Kiesling, Washington; second, \$3 cash, Mrs. A. C. Dukelow, Spokane; third, \$2 cash, Mrs. J. W. Lipe, Clarkston, Washington.

Best Unflavored Apple Jelly—First, \$5 cash, Miss R. E. Stewart, Spokane; second, \$3 cash, L. L. Parker, Buckeye, Washington; third, \$2 cash, Mrs. W. E. Talmadge, Sharon, Washington.

Best Apple Vinegar—First, \$5 cash, John Bengel, Spokane; second, \$3 cash, Grace Duff, Kiesling, Washington; third, \$2 cash, Mrs. A. C. Dukelow, Spokane.

Best Apple Relish—First, \$5 cash, Mrs. A. C. Dukelow, Spokane; second, \$3 cash, Mrs. C. M. Green, Vera, Washington; third, \$2 cash, Mrs. J. W. Lipe, Clarkston, Washington.

Factory By-Products—For the largest display of the greatest variety of factory by-products of the apple show by an individual, firm or corporation, first prize, \$50, Yakima Fruit Products Company, North Yakima, Washington.

Adams Leather Company Special—A \$5 pair of gentlemen's puttees was awarded to the Tredinnock Farm, Belair, Washington, for winning with the largest apple.

Mitchell, Lewis & Staver Special—Elmer C. Huff, Wenatchee, Washington, winner of 20 first prizes in the plate exhibits, was awarded a \$65 light-draft harrow, donated by the Mitchell, Lewis & Staver Company.

Packing Contest—First, \$100 cash, Charles Mason, Spokane; second, \$50 cash, Joe Goodner, Otis Orchards, Washington; third, \$25 cash, J. S. McPherson, Zillah, Washington.

Photographs on Apples—Best photographs on apples, first, \$20, Frank L. Howting, North Yakima, Washington; second, \$10, Mrs. F. T. Dodge, Kiesling, Washington. Most unique lettered or figured design on apples, first, \$20, Mrs. F. T. Dodge, Kiesling, Washington; second, \$10, G. Bedteiyon, Otis Orchards, Washington.

Northern Pacific Cup—Best 10 boxes grown along lines of Northern Pacific, John Howard, Otis Orchards, Washington; White Winter Pearmain exhibited.

S. P. & S. Cup—Best single box grown along S. P. & S. line, W. T. Jackson, Skamania County, Washington.

ARSENATE OF LEAD FOR SPRAYING

How to prevent what is estimated by experts as more than a quarter of a billion dollars' annual damage to the crops of this country by insects and germs is a problem which is engaging, as never before, the attention of horticulturists, fruit growers and farmers. It is accepted that the best method, so far discovered, is that of destroying the pests by means of judicious spraying with arsenate of lead. This reliable and economical insecticide is now employed with most satisfactory results by leading entomologists and growers, and its use is steadily on the increase throughout the country. Arsenate of lead is particularly fatal to leaf destroying insects and can be freely used without risk of rusting or scorching the most tender foliage. Care must be taken, however to see that the poison is of full strength and properly combined. Such an article is that of the P-W-R brand, guaranteed under the insecticide act of 1910 by the manufacturers, Powers-Weightman-Rosengarten Company, Philadelphia, New York, St. Louis. It is supplied in both paste and powder form, at lowest ruling prices, by first-class wholesale drug houses, drug stores and seed houses throughout the United States.

[Advertisement]



Prize-winning Display entered by the Otis Orchards District in the Spokane River Valley. Winner of \$200 first prize for the most original and attractive display made by a district, association, lodge, society, county or union. Fifth National Apple Show, 1912.



Products of One Farm. Exhibited by J. K. Carper. Pacific Northwest Land Products Show, Portland, Oregon, 1912.

The Pacific Northwest Land Products Show at Portland

By G. E. A. Bond, Secretary and Manager

THROUGH the combined and well-directed efforts of 175 exhibitors, including districts, commercial organizations, individuals and railroads, there was displayed at the Pacific Northwest Land Products Show, Portland, Oregon, during the week November 18 to 23 inclusive, one of the best arranged, artistic and most comprehensive exhibits of orchard and soil products ever shown west of New York City, and one that was complete in placing before the visiting public all the varied crops of the fertile Pacific Northwest. Arranged in the district displays and booths were exhibited all the soil resources of each section, embracing fruits, grains, grasses, vegetables, forage crops, etc., in seemingly endless varieties, and each and every district scored high for effective presentation. Each display presented some new feature or specialty, with the result that the thousands visiting the show daily paused at each and kept the representatives of the many sections busy answering questions put to them; land seekers looking for information at all times being in evidence.

The many districts representing Central Oregon, whose products were displayed for the first time, were the source of constant attraction, notably the "dry farming exhibits." Those districts entering in the class known as the "district agricultural display" outnumbered those entered in the "artistic apple display" and competition for honors was keen, and in the final scoring in this class the prizes were awarded as follows: Rogue River district, Oregon, first prize; Lane County, Oregon, second prize; Madras, Oregon, third prize; Goldendale, Washington, fourth prize. The scoring all through was very close and but a few points separated the contestants. The arrange-



Second Prize—Agricultural District Display. Pacific Northwest Land Products Show, Portland, Oregon, 1912.

ment and decorations in this class were most effective in all displays, the exhibitor depending entirely upon his grains and grasses for decorative features, with an artistic arrangement of vegetables and fruit, thus making the best possible display of all products.

Throughout the building were many unique and decorative features which added to the general effect, and in the artistic apple display class many hundreds of dollars were expended in placing before the visitor, in a most

attractive manner, the leading commercial varieties of apples of each district. In this class there were eleven entries, and the requirements of the rules were that each entry exhibit one box each of the five leading varieties of the district, in addition to the general display, and file with the judges written reasons why such varieties were the best adapted to the exhibiting district. In this class competition was also close and the differences between the scores of each district were but a few points. In some cases those entering overlooked one important point, and that was that the decorations should be subordinate to the fruit and not such as to make subordinate the natural decorative value of the fruit itself. The winners in this class were: Goldendale, Washington, first prize; Sealy-Dresser & Co., Portland, Oregon, second prize; Montague Farm, Hood River, Oregon, third prize; State of Idaho, fourth prize.

In the 25 four and one-box classes of apples there were 334 exhibits, and honors were about evenly divided between Oregon, Idaho and Washington. In the 25-box class the scoring was very close and in many instances the winner of the first prize was determined by one-quarter of one point, and the same slight difference in scoring was noticeable in determining the second prize. Plate displays totaled 503 entries, the exhibits being confined to fifty leading varieties of apples. In the classes devoted to pears the prizes went to the Rogue River district and



First Prize—"Artistic Apple Display," Pacific Northwest Land Products Show, Portland, Oregon, 1912.

Idaho. The total number of exhibits displayed at the show were 1,016.

One of the best educational features at the show was the potato class, and in this class alone there were sixteen entries, exhibiting from ten to thirty varieties each, and the first prize was awarded Asahel Smith of Ladner, British Columbia; the second prize to Culver, Oregon, and the third prize to Dufur, Oregon. The displays in this class were an attraction to all visitors and the winner was kept busy answering many questions as to his methods of cultivation, raising of seed stock, etc., and was found at all times willing and ready to give full information as to his methods. Mr. Smith brought to the show only thirty varieties, and his competitors admitted his clear title to first honors and recognize that the knowledge gained from him by the farmers from all sections means many thousands of dollars to them in the future. It is hard for one who has been the manager of this exhibit not to feel a little pride over its success, but at the same time it must be candidly stated that the exhibitors made the show, and to them all honors are due. The placing of the district exhibits entailed many hours' hard work that the communities might be well represented, and in some cases the products exhibited were brought many miles in wagons before reaching the railroads—notably the J. K. Carper exhibit from Enterprise, Oregon; the Paisley district and many of the Central Oregon displays; and the fact that every exhibitor was satisfied and will come again is the strongest evidence of the success of the first show. In attendance, the number visiting the show far exceeded the anticipations of the management, considering the location of the building, the total number being 30,616 for the six days, with the best daily attendance on Wednesday, November 20, due to additional and attractive features presented on that day by the Harriman lines.

The prize winners in all classes were as follows:



First Prize—Agricultural District Display. From Rogue River Valley, Oregon. Pacific Northwest Land Products Show, Portland, Oregon, 1912.

ARTISTIC APPLE DISPLAY

First prize, Goldendale Fruit & Produce Association, Goldendale, Washington; second prize, Sealy-Dresser Company, Portland, Oregon; third prize, Montague Farm, Hood River, Oregon; fourth prize, H. P. Ashby, Boise, Idaho.

DISTRICT AGRICULTURAL DISPLAY

First prize, Ashland Commercial Club, Ashland, Oregon; second prize, Lane County, Oregon; third prize, Madras District, Madras, Oregon; fourth prize, Goldendale Fruit & Produce Association, Goldendale, Washington.

TWENTY-FIVE BOX CONTEST

Rome Beauty—First prize, George Taylor, Meridian, Idaho; second prize, Weatherford & Monnett, Imbler, Oregon.

Spitzenberg—First prize, Sears & Porter, Hood River, Oregon; second prize, John Hakel, Hood River, Oregon.

Winesap—First prize, Carl Wodecki, The Dalles, Oregon.

Yellow Newtown—First prize, Harrison F. Gleason, Hood River, Oregon; second prize, Frank Fenwick, Hood River, Oregon.

FOUR-BOX CONTEST

Arkansas Black—First prize, John Breckenridge, Boise, Idaho; second prize, Sears & Porter, Hood River, Oregon.

Baldwin—First prize, Sears & Porter, Hood River, Oregon; second prize, Mrs. J. C. Porter, Hood River, Oregon.

Black Twig—First prize, C. L. Green, Wenatchee, Washington.

Gano—First prize, W. N. Yost, Boise, Idaho; second prize, Weatherford & Monnett, Imbler, Oregon.

Grimes Golden—First prize, Charles Biery, Wenatchee, Washington; second prize, Wm. Olsen, Husum, Washington.

Jonathan—First prize, John Breckenridge, Boise, Idaho; second prize, M. Stewart, Summerland, British Columbia.

McIntosh—First prize, M. Stewart, Summerland, British Columbia.

Ortley—First prize, H. C. Stieverkropp, Hood River, Oregon; second prize, Lawrence & Smith, Hood River, Oregon.

Red Cheek Pippin—First prize, Sears & Porter, Hood River, Oregon; second prize, Julius Sandoz, The Dalles, Oregon.

Rome Beauty—First prize, Weatherford & Monnett, Imbler, Oregon; second prize, Mrs. Roy C. Brock, Hood River, Oregon.

Spitzenberg—First prize, Mrs. W. W. Rodwell, Hood River, Oregon; second prize, H. C. Stieverkropp, Hood River, Oregon.

Stayman—First prize, C. L. Green, Wenatchee, Washington; second prize, Balm Cove Orchard Co., Dufur, Oregon.

White Winter Pearmain—First prize, Frank H. Arb, Lyle, Washington; second prize, W. N. Yost, Boise, Idaho.

Winesap—First prize, Tedford Brothers, Wenatchee, Washington; second prize, W. N. Yost, Boise, Idaho.

Winter Banana—First prize, C. C. Carpenter, Hood River, Oregon; second prize, V. C. Brock, Hood River, Oregon.

Yellow Newtown—First prize, John Hakel, Hood River, Oregon; second prize, Lawrence & Smith, Hood River, Oregon.

ONE-BOX CLASS

Arkansas Black—First prize, W. N. Yost, Boise, Idaho; second prize, John Breckenridge, Boise, Idaho.

Baldwin—First prize, Nelson & Anislie, Hood River, Oregon; second prize, Charles W. Reed, Hood River, Oregon.

Ben Davis—First prize, D. Geckler, Boise, Idaho; second prize, Lawrence & Smith, Hood River, Oregon.

Black Ben—First prize, Tedford Bros., Wenatchee, Washington.

Black Twig—First prize, Lawrence & Smith, Hood River, Oregon; second prize, Tedford Bros., Wenatchee, Washington.



Baker County, Oregon, Agricultural Exhibit. Pacific Northwest Land Products Show, Portland, Oregon, 1912.



Oregon-Washington Railroad & Navigation Company's Display. Pacific Northwest Land Products Show, Portland, Oregon, 1912.



Lewiston-Clarkston Exhibit. Pacific Northwest Land Products Show, Portland, Oregon, 1912

Delicious—First prize, Wm. Olsen, Husum, Washington.

Gano—First prize, M. Stewart, Summerland, British Columbia; second prize, Lawrence & Smith, Hood River, Oregon.

Gravenstein—First prize, J. W. Staats, White Salmon, Washington; second prize, Winferd M. Pierson, Appleton, Washington.

Grimes Golden—First prize, Charles Biery, Wenatchee, Washington; second prize, Hunters Hill Orchard Co., Husum, Washington.

Hydes King—First prize, Lawrence & Smith, Hood River, Oregon; second prize, Sears & Porter, Hood River, Oregon.

Jonathan—First prize, John Breckenridge, Boise, Idaho; second prize, W. N. Yost, Boise, Idaho.

King Tompkins—First prize, Sears & Porter, Hood River, Oregon; second prize, Mrs. J. C. Porter, Hood River, Oregon.

McIntosh Red—First prize, Sears & Porter, Hood River, Oregon; second prize, M. Stewart, Summerland, British Columbia.

Missouri Pippin—First prize, A. E. Knowles, Wenatchee, Washington.

Northern Spy—First prize, M. Stewart, Summerland, British Columbia; second prize, C. J. Tidecombe, Seappoose, Oregon.

Ortley—First prize, Lawrence & Smith, Hood River, Oregon; second prize, Mrs. W. W. Rodwell, Hood River, Oregon.

Red Cheek Pippin—First prize, Julius Sandoz, The Dalles, Oregon; second prize, Nelson & Anislie, Hood River, Oregon.

Rome Beauty—First prize, Weatherford & Monnett, Imbler, Oregon; second prize, W. N. Yost, Boise, Idaho.

Spitzenberg—First prize, M. Stewart, Summerland, British Columbia; second prize, Chas. W. Reed, Hood River, Oregon.

Vanderpool Red—First prize, H. G. Rumbaugh, Albany, Oregon.

Wagener—First prize, H. O. Stieverkropp, Hood River, Oregon; second prize, John Hakel, Hood River, Oregon.

Wealthy—First prize, M. Stewart, Summerland, British Columbia.

White Winter Pearmain—First prize, Mr. Stewart, Summerland, British Columbia; second prize, Tedford Bros., Wenatchee, Washington.

Winesap—First prize, W. N. Yost, Boise, Idaho; second prize, H. P. Ashby, Boise, Idaho.

Winter Banana—First prize, Alex McKay, Summerland, British Columbia; second prize, C. C. Carpenter, Hood River, Oregon.

Yellow Bellflower—First prize, Julius Sandoz, The Dalles, Oregon; second prize, Burrell Investment Co., Colfax, Washington.

Yellow Newtown—First prize, W. N. Yost, Boise, Idaho; second prize, John Hakel, Hood River, Oregon.

BIG APPLES

Pyramid of Thirty (weight to govern)—First prize, W. H. Hay, Montesano, Washington; second prize, Montague Farm, Hood River, Oregon; third prize, B. Leis, Beaverton, Washington.

Single Biggest Apples (circumference to govern)—First prize, A. F. Clapper, Salem, Oregon.

POTATOES

First prize, Asahel Smith, Ladner, British Columbia; second prize, Culver Development League, Culver, Oregon; third prize, A. V. Underwood, Dufur, Oregon.

PEARS, THREE-BOX CONTEST

Anjou—First prize, Carl Wodecki, The Dalles, Oregon.

Clairegau—First prize, N. E. Gale, Meslier, Oregon.

Comice—First prize, J. L. Tracy, Medford, Oregon.

P. Barry—First prize, A. Holliday, Seappoose, Oregon.

Winter Nelis—First prize, Montague Farm, Hood River, Oregon; second prize, Carl Wodecki, The Dalles, Oregon.

PEARS, ONE-BOX CONTEST

Anjou—First prize, G. E. Marshall, Medford, Oregon; second prize, Carl Wodecki, The Dalles, Oregon.

Buerre Easter—First prize, Carl Wodecki, The Dalles, Oregon.

Bosc—First prize, William Brayton, Central Point, Oregon.

Clairegau—First prize, N. E. Gale, Meslier, Oregon; second prize, J. D. Eaton, Vancouver, Washington.

Comice—First prize, Carl Wodecki, The Dalles, Oregon; second prize, J. L. Tracy, Medford, Oregon.

P. Barry—First prize, A. Holliday, Seappoose, Oregon.

Winter Nelis—First prize, Carl Wodecki, The Dalles, Oregon; second prize, Montague Farm, Hood River, Oregon.

PEARS, SINGLE PLATES

Anjou—First prize, G. E. Marshall, Medford, Oregon; second prize, Carl Wodecki, The Dalles, Oregon.

Buerre Easter—First prize, H. Bingham, Medford, Oregon; second prize, Carl Wodecki, The Dalles, Oregon.

Bosc—First prize, Wm. Brayton, Central Point, Oregon.

Comice—First prize, J. L. Tracy, Medford, Oregon; second prize, Carl Wodecki, The Dalles, Oregon.

Idaho—First prize, F. A. Gregory, Portland, Oregon.

P. Barry—First prize, H. Bingham, Medford, Oregon; second prize, A. Holliday, Seappoose, Oregon.

Seckel—First prize, G. O. Vannatta, Ashland, Oregon.

Winter Nelis—First prize, G. B. Dean, Medford, Oregon; second prize, Fred Hopkins, Central Point, Oregon.

Worden Seckel—First prize, H. Bingham, Medford, Oregon.

Five or More Plate Display—First prize, H. Bingham, Medford, Oregon; second prize, J. E. Butler, Lewiston, Idaho.

NUTS

Collective Exhibit—First prize, Ferd Groner, Hillsboro, Oregon; second prize, J. E. Butler, Lewiston, Idaho.

Franquette Walnut, single dishes—First prize, Ferd Groner, Hillsboro, Oregon.

Parisienne Walnut—First prize, Prineville District, Prineville, Oregon.

THRESHED GRAIN AND HOPS

Wheat, spring and winter—First prize, Prineville District, Prineville, Oregon; second prize, Culver Development League, Culver, Oregon.

Barley—First prize, Culver Development League, Culver, Oregon; second prize, Prineville District, Prineville, Oregon.

Oats—First prize, C. D. Nairn, Amity, Oregon; second prize, Prineville District, Prineville, Oregon.

Rye—First prize, Prineville District, Prineville, Oregon.

DRIED FRUITS

Italian Prunes—First prize, B. Leis, Beaverton, Washington; second prize, Mason Ehrman & Co., Portland, Oregon.

Petite Prunes—First prize, Mason Ehrman & Co., Portland, Oregon.

Apples—First prize, Mason Ehrman & Co., Portland, Oregon.

Pears—First prize, Mason Ehrman & Co., Portland, Oregon.

Apricots—First prize, Mason Ehrman & Co., Portland, Oregon.

Peaches—First prize, Mason Ehrman & Co., Portland, Oregon.

SINGLE DISHES

Black Raspberries—First prize, Mason Ehrman & Co., Portland, Oregon.

Apples—First prize, Mrs. Jessie C. Vercler, Salem, Oregon; second prize, Mason Ehrman & Co., Portland, Oregon.

Pears—First prize, Mason Ehrman & Co., Portland, Oregon; second prize, Mrs. Jessie C. Vercler, Salem, Oregon.

Apricots—First prize, Mason Ehrman & Co., Portland, Oregon.



One of the most attractive "Artistic Apple Displays." Pacific Northwest Land Products Show, Portland, Oregon, 1912.

Peaches—First prize, Mason Ehrman & Co., Portland, Oregon; second prize, Mrs. Jessie C. Vercler, Salem, Oregon.

Italian Prunes, 20/30—First prize, Mason Ehrman & Co., Portland, Oregon; second prize, Henry D. Townsend, Salem, Oregon.

Italian Prunes, 30/40—First prize, L. T. Reynolds, Salem, Oregon; second prize, B. Leis, Beaverton, Washington.

Italian Prunes, 40/50—First prize, B. Leis, Beaverton, Washington; second prize, Mrs. Jessie C. Vercler, Salem, Oregon.

JELLIES, PRESERVES

Fruit Jelly—First prize, Mrs. Robert Warner, Oregon City, Oregon; second prize, Mrs. W. W. Rodwell, Hood River, Oregon; third prize, Hood River High School, Hood River, Oregon.

Home Canned Fruit—First prize, D. H. Thorn, Hood River, Oregon; second prize, Mrs. W. W. Rodwell, Hood River, Oregon; third prize, Mrs. J. K. Carper, Promise, Oregon.

Home-Made Jam or Marmalade—First prize, Mrs. Jessie C. Vercler, Salem, Oregon.

Apple Butter, commercial or home-made—First prize, Mrs. W. W. Rodwell, Hood River, Oregon; second prize, Mrs. W. H. Lawrence, Hood River, Oregon; third prize, Mrs. J. K. Carper, Promise, Oregon.

As to the future, the Pacific Northwest Land Products Show belongs to Portland, and it will be a yearly event hereafter, expanding each successive year with a further development of its educational features. It will aid the development of the country tributary to the large cities of the Pacific Northwest and will show to the thousands of visitors what can be produced by a farmer who will follow scientific and up-to-date methods. It has been recommended that at future shows each district display prominently signs, giving statistics as to climate, soil, precipitation, etc., in order that the visitors may get a personal interview with the representatives in charge; also that samples of soil of the district be made part of the display. The management believe that the educational purposes set forth in the preliminary announcements of the show have been accomplished and that the bringing together of the farmers of the different sections, enabling them to exchange views and make comparisons, thus learning wherein their products are superior or inferior to those of other sections and the reasons for it, will lead to an improvement in farming methods and of crops in all sections.

One of the most educational displays was the exhibit of the Oregon Agricultural College, and information on all matters pertaining to scientific agriculture was eagerly sought and the value of same recognized. Without exception, the exhibitors realize the necessity of the establishment of agricultural schools or experimental stations in every district and the bringing together each year of the best products of each for exhibition purposes. One of the products of the soil which received considerable attention was



Prize-winning Potato Exhibit of Asahel Smith, Ladner, B. C. Thirty varieties. Pacific Northwest Land Products Show, Portland, Oregon, 1912.



Fourth Prize—"Artistic Apple Display." Pacific Northwest Land Products Show, Portland, Oregon, 1912.

the corn raised in the different sections of the state, and when the time comes for holding the second show this product must be better recognized in the premium list, in view of the fact that it has been proven at this show that good corn can be grown in this state and that many varieties will equal the best produced in the East. The Pacific Northwest Land Products Show has proven to be a success, and was promoted and brought to a successful termination with the expenditure of a very small amount of money and the final returns, now that all premiums and expenses have been paid, show a small but satisfactory surplus, and the thanks of the management are due to all those who have contributed to the making of this great show.

The Ashland District

The Ashland exhibit of the Rogue River Valley, embracing an agricultural and horticultural display, was intended to (and we think did) correct an erroneous impression regarding that part of the valley across Bear Creek, north from Ashland, such impression heretofore having been that the soil in this particular territory was not fertile. To all who care to investigate this question, it can readily be demonstrated that the large tract mentioned, which has been undergoing the process of development for the past four to seven years, will eventually represent the real agricultural portion of this valley. And in this connection we might add that the territory under

consideration extends as far west as Talent, with approximately 50,000 acres as yet practically untouched save by the mowing of wild oats. In the main this extensive area is still used as grazing lands for cattle and sheep. Here corn, wheat and alfalfa, as well as all kinds of root products for both stock and household use, can be raised with comparative ease. Here also poultry thrives. The nights and days are from six to eight degrees warmer in winter owing to the open valley exposure, the sun shining from two to four hours per day longer, inasmuch as this district is removed from the shadow of the mountains. Possessing so many advantages, the bona fide homeseeker is bound to be attracted to this locality, where land can still be obtained at reasonable prices, and where the yield therefrom is remunerative. To summarize, the

Bees Help Fruit You will get more fruit, better fruit, with bees in your orchard. Write for full particulars to
The A. I. Root Co.
 Box 358 Medina, Ohio

Ashland exhibit is all that is claimed for it, and the display as shown at the recent local District Fair, also at the Pacific Northwest Land Products Show at Portland, speaks for itself.—(Signed) D. M. Lowe.

Where We Get Our Largest Yield

Dr. Elwood Mead, who is known as one of our best irrigation experts, writing for the Yearbook of the United States Department of Agriculture concerning irrigation in the seventeen arid Western States, says: "We do not know how many irrigation works have been built. There may be 75,000 completed ditches or there may be double the number, but either as to their number or as to the number of acres of land reclaimed thereby there is only surmise and conjecture. It is, however, known that the highest priced and most productive farm lands on this continent are in the arid region; that the largest yield of nearly every staple crop has been obtained by the aid of irrigation."

Fruit Growers' Instructions

At Lewiston, Idaho, on January 6, the Lewiston Land and Water Company and Lewiston-Clarkston Improvement Company of Clarkston began a special course in horticulture which lasted six weeks. The course consisted of lectures and recitations each morning for five days a week upon the following general subjects: Principles of fruit growing, nursery practice, vegetable gardening, small fruits, plant diseases, insect pests, spraying, harvesting, packing and marketing of crops.



Fourth Prize—Agricultural District Display. From Goldendale, Washington. Pacific Northwest Land Products Show, Portland, Oregon.

Wanted A first-class man who understands the care of an orchard from time of planting until five years old, possibly longer. Must be able to prune trees, detect any diseases and handle spraying equipment. Will furnish new eight-room house; hot and cold water running through both floors and cellar, bath room and two toilets in house. Will grant privilege of raising all garden truck and keep 50 hens. Let me hear from you, stating experience, qualifications, references and salary expected. My farm is in Southern Idaho. Address G. D. E., care "Better Fruit."

New Things Wanted

By R. E. Olds, Designer

Here are some new things every man wants when he comes to select a new car.

Cars without them will soon be distinctly out of date.

Center Control Left Side Drive

Note the costliest cars for 1913. Note that the driver sits on the left side, close to the cars he passes. Note that the levers are all in the center, to be operated with the right hand.

What the finest cars use this year will next year become universal.

Reo the Fifth has both these features. But our center control is a single light lever. All the gear shifting is done by moving this handle only three inches in each of four directions. It's as simple as moving the spark lever.

Both brakes are operated by foot pedals. So there are no side levers. Both front doors are clear.

Right side drive and side levers are now both out of fashion.

Oversize Tires

Skimping on tire size is also old-fashioned. It multiplies tire upkeep.

Reo the Fifth uses tires 34x4. Tires often used on cars of this size would cost us \$60 less. But that \$60 saves you hundreds of dollars during the life of the car.

Timken Bearings

Timken roller bearings cost five times what common ball bearings cost. But they do not break.

But when makers say "Timken bearings" ask them just how many. Some use only two.

Reo the Fifth has 15 roller bearings—11 Timken, 4 Hyatt High Duty.

And, to guard against flaws, we use 190 drop forgings. Steel castings, which have frequent flaws, cost but half as much.

Look for Safety

In the costliest cars all vital parts are built with large margins of safety. Don't buy any car without them.

We give our parts at least 50 per cent over-capacity.

To make sure of this we twice analyze every lot of steel. We test our gears to stand 75,000 pounds per tooth. We test our springs for 100,000 vibrations.

Men who know, in these days, take no chances in their cars.

Other Needs

Get a magneto on which you can start. We use a \$75 magneto.

Insist on a doubly-heated carburetor. One needs it in these days of low-grade gasoline.

Insist on a 17-coated body, else the finish will not last.

Insist on flush electric dash lights. Side lamps are out of style.

Get upholstery of genuine leather filled with the best curled hair.

A car of this size should have 14-inch brake drums. It requires wide, seven-leaf springs.

Cars at close prices are rarely built like this. Hidden parts are very often skimmed. New things are omitted because of the cost.

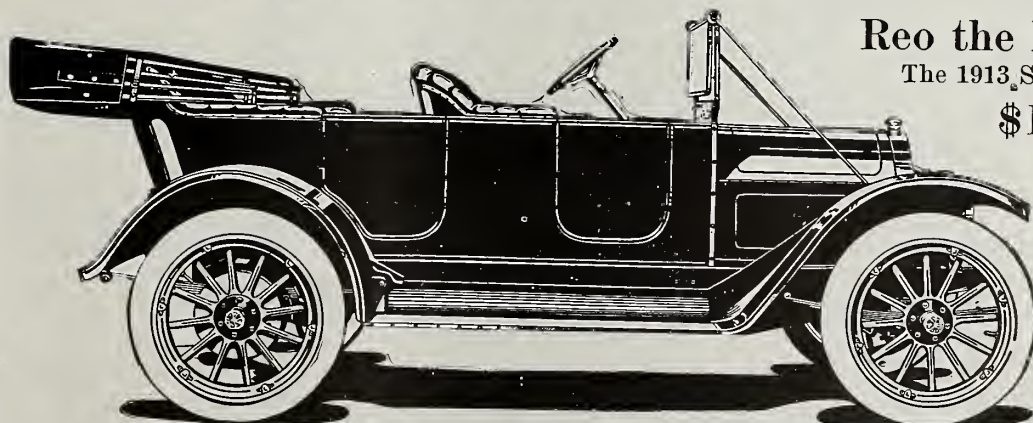
But buyers of new cars should see that they get them. Your delight in a car depends on it. So do safety and comfort and low cost of upkeep.

When buyers refuse to take anything less, all cars will be built like this.

Please look into this car—the final result of my 26 years spent in car building.

Write for our catalog, and name of nearest dealer.

R. M. Owen & Co., General Sales Agents for Reo Motor Car Co., Lansing, Mich.
CANADIAN FACTORY, ST. CATHARINES, ONTARIO



Reo the Fifth

The 1913 Series

\$1,095

30-35 Horsepower
Wheel Base—
112 Inches
Tires—
34x4 Inches
Center Control
15 Roller Bearings
Demountable Rims
Three Electric
Lights
190 Drop Forgings
Made with 5 and 2
Passenger Bodies

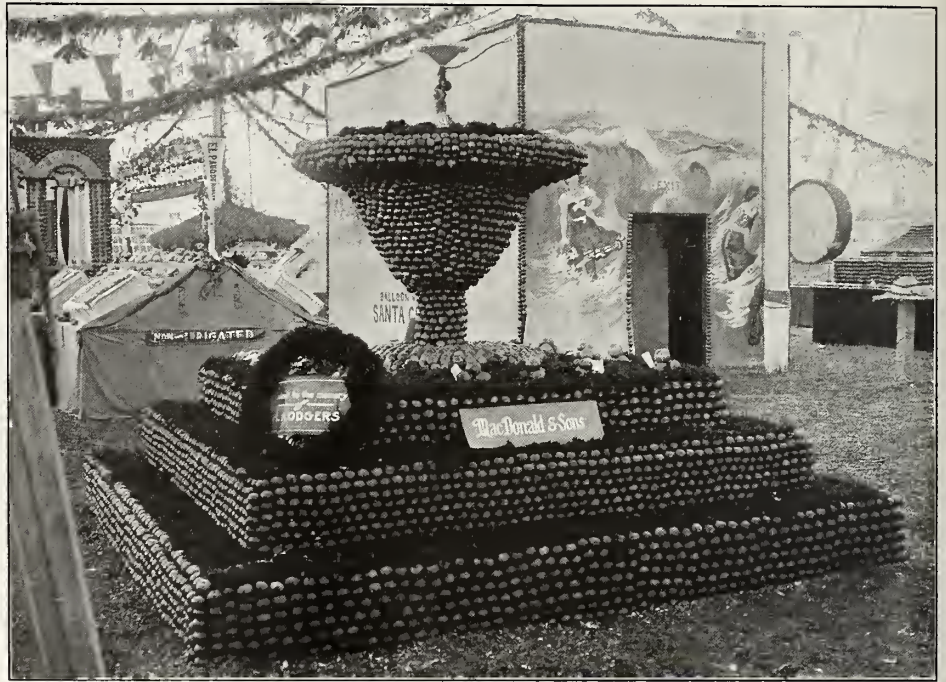
Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas tank for headlights, speedometer, self-starter, extra rim and brackets—all for \$100 extra (list price \$170)

The California Apple Show of 1912, Held at Watsonville

By C. Gentry Redman, Secretary Watsonville Apple Annual Association

THE third annual California Apple Show was held at Watsonville, Santa Cruz County, California, October 7 to 13 inclusive, and exceeded those of the previous years in attendance, artistic beauty and quality of fruit exhibited. The show was styled "The Apple Show Different," and the idea was carried out to perfection. Watsonville is situated in the heart of the Pajaro Valley, the largest apple-producing section of the world, area considered. About 5,000 carloads of apples are produced here annually, mostly the Bellflower and Newtown Pippin, although many other varieties are grown commercially. This section is a pioneer one when it comes to producing apples, the first orchard having been planted in 1853 by Hon. Jesse D. Carr and is still producing fruit. Aside from being a great apple-producing section, Watsonville is so geographically situated that its location makes it ideal for holding a successful state apple show, it being about the center of the state, north and south, and about five miles from the coast.

The holding the California Apple Show at Watsonville the past three years has stimulated the apple industry all over the state to the extent that this year twenty counties were represented by exhibits. The show was opened on the evening of October 7 by acting and lieutenant-governor of California, A. J. Wallace, who spoke of "The importance of annual exhibitions of soil products in the development of California." As one entered the spacious pavilion, the first exhibits to greet the eye were the local district displays which were placed on either side under



"Fountain." By MacDonald & Sons, Watsonville. Exhibited at the California Apple Show, Watsonville, 1912. The above was dedicated by the exhibitors to the memory of Charles H. Rodgers, deceased, one of the directors of the California Apple Show and for a number of years Horticultural Commissioner. Mr. Rodgers had done more than any one individual to advance the horticultural interests of this section. For years he gave over to the Government experts his orchard for experimental purposes.

the galleries. There were seven in all, representing different sections of the Pajaro Valley. These were artistically arranged and called forth much favorable comment. A prize of a silver trophy, presented by President O. D. Stoesser of the Watsonville Apple Annual Association, was won by Corralitos district and was awarded for the best scoring, variety of apples, size

and artistic arrangement. It was this display that contained the exhibit of Mr. W. W. Sunbury, a five and a one-box lot, which scored absolutely perfect, 1,000 points. The five and ten-box lots were placed on the second floor of the auditorium and represented many exhibitors. There were 133 five-box lots and 251 one-box lots in competition.

Leaving the left exits of the main auditorium one entered the large tent (125x225 feet), which was given over entirely to the large, box and feature exhibits. One of the main annual attractions of the California Apple Show and the one which has been the cause of so much favorable comment is the beautiful and artistic feature displays, all made of apples or apple products. Designs representing public buildings or some objects of state, county or local interest are cleverly reproduced. Among some of the feature displays this year worthy of special mention were "California," by the Native Sons and Daughters of the Golden West. A large, life-sized bear, emblematic of the state and their order, built entirely of evaporated apples and colored brown, was mounted on a terraced block of green apples. Overhead were streamers of golden poppies, California's state flower. The bear was mechanically constructed in such a manner that it revolved and at certain periods would pause and growl, in perfect imitation of a real live bear, which reminded one of the old pioneers of early days. The Watsonville High School had for their exhibit a large hemisphere built of evaporated and



"California" Exhibit of the Native Sons and Daughters at the California Apple Show, Watsonville, California, October 7 to 12, 1912. The Bear was constructed of evaporated apples and revolved, and at intervals would growl.

Continued on page 27.

No-Rim-Cut Tires *10% Oversize*

The Tale They Told

Here is a tale told by Goodyear tires to 250,000 users.

Told nearly two million times.

It sold last year 918,687 Goodyear tires. It has made them the largest-selling tires in the world.

And these same tires will this year tell it to hundreds of thousands of new users.

This Tale

Rim-Cutting is simply impossible with a No-Rim-Cut tire.

With old-type tires, rim-cutting ruins about 23 per cent.

No-Rim-Cut tires—our patent type—are 10 per cent over the rated size. And that, on the average, adds 25 per cent to the tire mileage.

These two features together save motor car owners a million dollars monthly.

The Goodyear Non-Skid is a double-thick tread, made of very tough rubber.

It is so thick that the blocks are cut very deep. So tough that the blocks are immensely enduring.

They grasp the road surface with a bulldog grip.

And these projections aren't separate. They meet at the base so the strains are distributed the same as with smooth-tread tires.

So this is by far the most efficient, the longest-lived non-skid.

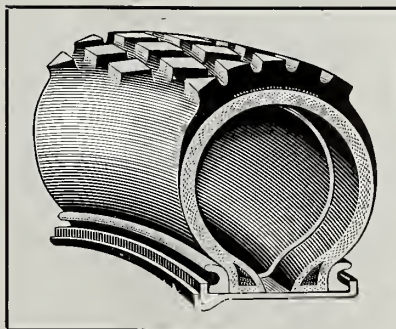
Listen To It

Now let these tires tell their tale to you—tell it by mileage figures—tell it by lower tire bills.

They will tell it in a way which you can't dispute. And it will, in the long run, save you hundreds of dollars.

The evidence is—A quarter-million men who heard this tale have come to Goodyear tires.

Write for the Goodyear Tire Book—14th-year edition. It tells scores of facts you should know.



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We Make All Kinds of Rubber Tires, Tire Accessories and Repair Outfits

Main Canadian Office, Toronto, Ontario—Canadian Factory, Bowmanville, Ontario



Exhibit of Indiana Apple Products at the Indiana Apple Show, Indianapolis, November, 1912

The Indiana Apple Show

By M. W. Richards, Indianapolis, Indiana

THE Hoosier apple is again claiming national recognition. November 13 the largest apple show ever held east of Denver was opened at Indianapolis. Tomlinson Hall, the largest auditorium in Indiana, was used to house the exhibits. It was taxed to its utmost. Sixty-three varieties were eligible to entry in twelve different classes. Every class was full. Best of all, it was an Indiana apple show. Every apple on the banks was raised in Indiana. The purpose of the apple show was twofold—to help the grower produce more and better apples and to more thoroughly acquaint the residents of the state with the unbounded opportunities which are to be found in Indiana horticulture. The quality of well-known Indiana fruit is of the best. The cost of production is lower in Indiana than in most of the famous apple districts on account of the relatively low price of land. The transportation facilities are excellent in nearly every section of the state. The great markets of the

country can be easily and quickly reached. The home markets are very inadequately supplied during the greater part of the year. The transportation costs are decidedly lower than in many celebrated apple-growing localities. A comparison of freight rates now in force indicates that Indiana orchardists, if they will grow, grade and pack their fruit as well as their Western competitors do, so as to sell at the same price, can make approximately \$275 a

Position Wanted

In large orchard, or will grow trees and develop orchard for land developing company. Have had 25 years' experience in nursery and orchard. Best references. Address "R," care "Better Fruit."

WANTED

Position as superintendent or manager of bearing orchard or development work. Have had 15 years' practical experience in the Wenatchee Valley. Best of references. Can make good anywhere. Address F. A. DREBIS, Wenatchee, Wash.

car more profit, or can undersell by that amount and yet make the same profit that the Western growers make.

Visitors from far and near were surprised at the quantity and quality of fruit exhibited. The exhibitors themselves were surprised. After they had properly packed their fruit and placed it on the banks they had a hard time recognizing it. Professor Van Deman, who judged both the 1911 and 1912 shows, expressed great interest in the progress of the Indiana orchardist. He said: "This exhibition shows a marvelous improvement in the apples since the show last year. Very few of the apples of last year would have been suitable for entry in the best apple exhibits. This year there is hardly a box of apples in the show that would not be fit to enter the highest class apple exhibits of the country."

This show disproved the old idea that Indiana only produced the Ben Davis, and it of apple-jack quality. Here were found varieties of the highest rank—Grimes, Jonathan, Newtown Pippin, Winesap, Rome Beauty, Spy, Banana, Delicious, Vandevere and Bellflower. Ben Davis was also there, but you

Continued on page 45

Position Wanted

By temperate young man of 31, as foreman or superintendent of orchard or farm. Practical and college training as horticulturist. Have had experience in the Northwest and East. Can handle men to best advantage. References. F. W. SABRANSKY, 177 Twelfth Avenue, Columbus, Ohio.

FARM WANTED!

Practical farmer and orchardist wants to rent on shares a 20 or 40-acre bearing commercial orchard, with the necessary machinery and stock for operating the farm. Part of the land could be unplanted and be used for vegetables and poultry. Farms in Wenatchee Valley preferred. Address L. JACOBSEN, 11 Indiana Avenue, Spokane, Wash.



General View of Plate and Individual Orchard Display. Indiana Apple Show, November, 1912

JUDICIOUS SPRAYING IS AN EFFECTIVE FRUIT INSURANCE

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Manufacturing Chemists

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Potash, Nitrate of Soda, Phosphoric Acid, Bone Meal, Lime, Land Plaster, Bone Tankage, Blood, and our

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Our Fertilizer Book, 5th edition 1913, tells how and when to apply, gives analyses of fertilizing materials, crop requirements and market value. It is a dependable reference book which every grower should have. Send us your name and receive this book, together with the valuable booklets "Potash Pays" and "Plant Food," published by the GERMAN KALI WORKS. Ask for Book No. 205.

Portland

PORTLAND

**Seed Co.**

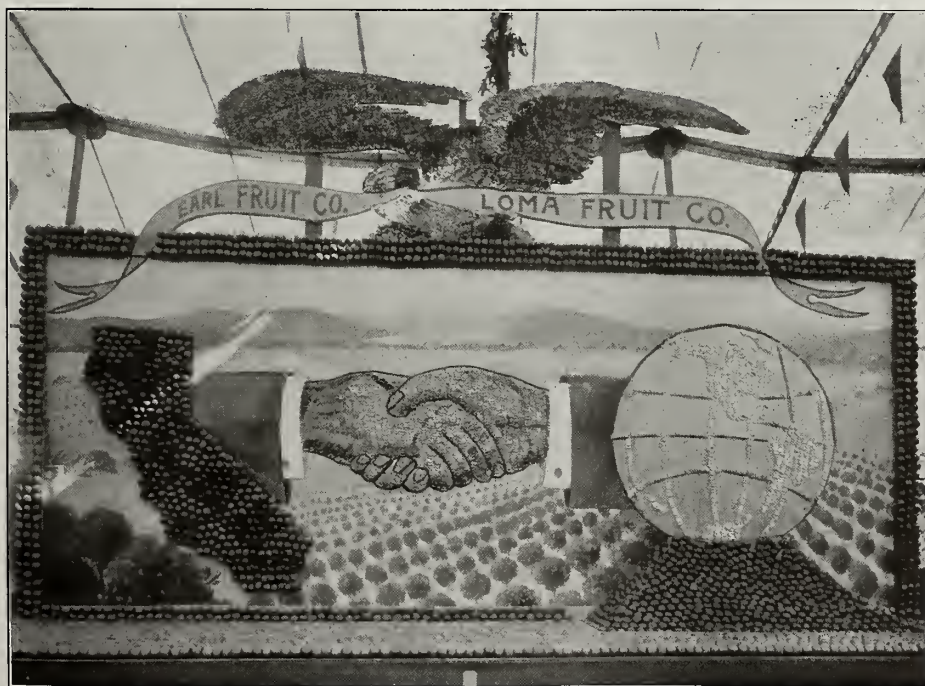
OREGON

California Apple Show

Continued from page 24

green apples, which was surmounted by a beautiful figure of a woman holding a handful of ribbons leading to all parts of the world, which represented Watsonville supplying the world with apples by land and sea. This display won the first prize of \$250 for the best feature exhibit. The Loma and Earl Fruit Companies had a very unique exhibit and one which was applicable to the apple industry of this locality. On the left of the construction was a large design of California worked in green apples. Emerging from this was a large hand which was clasped with another extending from the world at the extreme right, the continents being represented by evaporated apples. In the background was a beautiful reproduction of the Pajaro Valley in colors. The artist's idea in the construction of this beautiful exhibit was California clasping hands with all markets of the world.

MacDonald & Sons, one of the leading growers and packers of apples in Watsonville, contributed an artistic display in the shape of a fountain, the bowl and base being composed of red apples. This exhibit was dedicated to the memory of the late Mr. Charles H. Rodgers, a former director of the California Apple Show, one of the leading horticulturists of the state and for years president of the local orchardists' association. The "Garden of Eden" was entered by the Santa Cruz Chamber of Commerce and attracted much attention. It was a reproduction of the first apple show of biblical times, in which Adam and Eve were the principal objects of interest. The figures were life sized and were made of evaporated apples. "The Gateways to Prosperity" was the exhibit of the San Jose Chamber of Commerce, and was an imposing and inviting exhibit. Over each gateway was lettered the various products for which the Santa Clara Valley is famous. "Calpaco," representing the townsite of the Watsonville Railway & Navigation Company at their beach terminal, was reproduced by a miniature design made of apples. The cottages, baseball park, casino and pier, also their railroad, were clever reproductions of the originals. The Gilroy Chamber of Commerce had on exhibi-



"California Shaking Hands with the World in the Apple Industry." Exhibited by the Loma and Earl Fruit Companies. California Apple Show, Watsonville, October, 1912.

The Neutral Product is Effective and Safe

In selecting an Arsenate of Lead for fruit-tree spraying, you choose between the Neutral and the Acid. The Neutral Arsenate has all the advantages found in the Acid with none of its disadvantages. Select

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New Process Arsenate of Lead

and you will be sure of obtaining a Neutral Insecticide that will keep leaf-eating insects under control without injury to the foliage or tree. S-W Arsenate of Lead contains the maximum amount of arsenic and the minimum of free or loosely combined arsenic, which makes it the most effective, and at the same time the safest.



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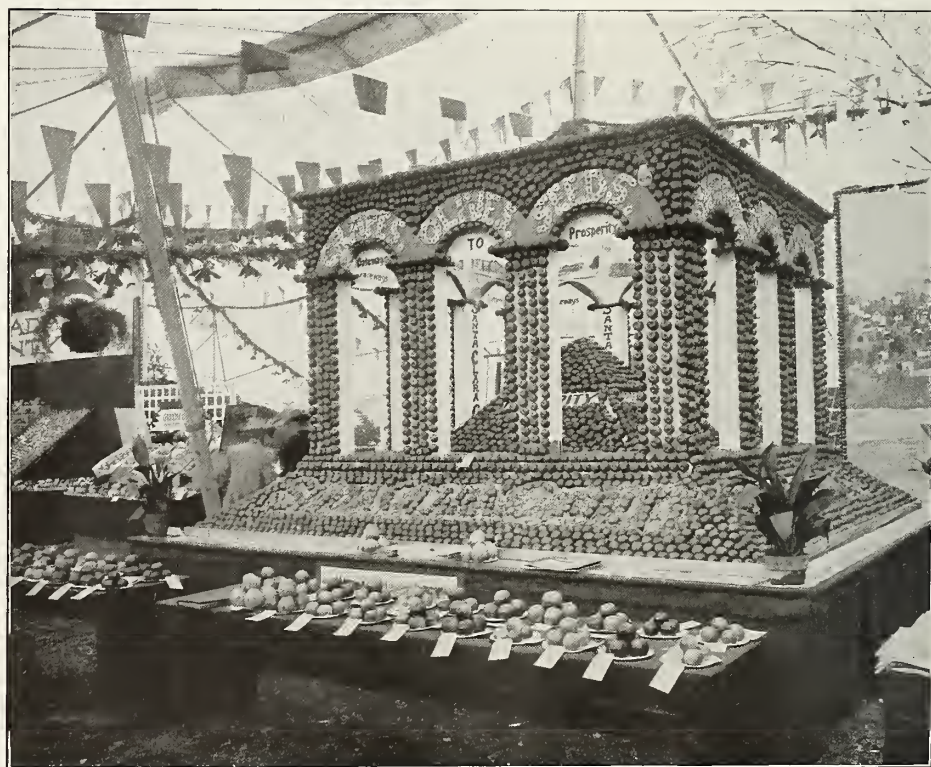


tion a reproduction of their I. O. O. F. Home for Orphans, built entirely of evaporated apples. It was mounted on a base covered with green and evaporated apples. The Western Apple Company's exhibit was unique and was an ingenious fac simile of its trade mark. The name and monogram of the firm was made of evaporated apples, while the support was covered with choice specimens of green apples. The Boys' Aero Club of Watsonville entered a miniature Wright aeroplane and a Newport monoplane. They were covered with evaporated apples, all the working parts being in evidence and the designs complete in every detail. The boys were certainly deserving of considerable credit for their interesting exhibit. A merry widow hat, covered with colored evaporated apples, was among the interesting feature displays and was the work of Mrs. H. B. Smith, a local milliner.

There were a number of artistic displays by various chambers of commerce and counties of the state which are deserving of special mention. Humboldt County was represented by an artistic booth which was very attractive and was a prize winner. At each corner were massive rustic redwood pillars with cross beams, giving the exhibit a Mission effect. Redwood bark was used for an outside facing. In the center was an enclosure supported with redwood posts and decorated with ferns and potted plants. The artist's idea in using redwood was to convey

the fact that Humboldt County is noted for its redwood forests which, when cleared, will make productive apple orchard lands. Choice plate exhibits were in evidence throughout this booth.

Paso Robles Chamber of Commerce had some choice specimens of apples artistically arranged. Nevada County's exhibit was varied and showed some excellent samples of highly-colored



"The Gateways to Opportunity." Exhibit of San Jose Chamber of Commerce. California Apple Show, Watsonville, October 7 to 12, 1912.



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Hurst Acme Power Sprayer

For large fruit growers. 100 and 200 gallon tanks—short turn gear, light weight, powerful pressure (12 nozzles at 200 lbs.), automatic pressure regulator, cyclone agitator, and a 2½ H.P. four-cycle engine that never fails. It is vertical, frost-proof, water-cooled, simple in construction, an engine any boy can operate. Engine can be relieved of load when nozzles are shut off. You can easily remove engine from sprayer and use for other work. Duplex pump with outside packing. Ski-Hi variable nozzle for high trees. Many other exclusive, practical features, fully described in catalog.

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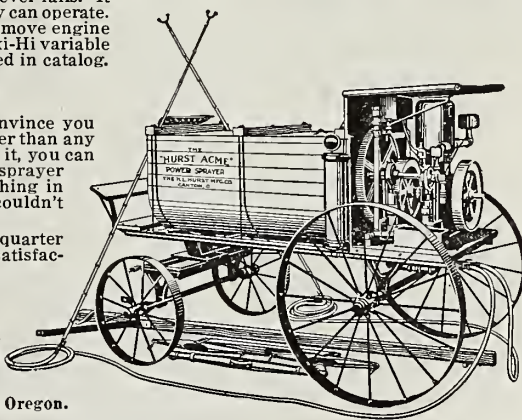
and let you use it ten days absolutely free of charge. If the free trial does not convince you that Hurst Sprayers are better made, easier operated, more durable and cheaper than any other sprayer on the market, send it back at our expense. If you decide to keep it, you can pay cash, or we will wait a whole season for our money and let you pay for the sprayer out of the increased profits. Surely, this is a one-sided proposition, with everything in your favor—if we weren't mighty certain about the quality of Hurst Sprayers, we couldn't afford to make this offer.

Our long experience in the manufacturing of spraying machines, covering over a quarter of a century, together with our binding 5-year guarantee, insures you complete satisfaction when you buy a Hurst Sprayer.

Money-Saving Offer—Free Catalog

Write us to-day, and we will send you, Free, our big catalog and condensed spraying guide and we will tell you all about our Free Sprayer Offer and our Free Trial proposition. Don't delay, but write at once and save money.

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apples. Inyo County had a small but excellent plate exhibit. Tuolumne County had its usual superior collection of selected specimens, which were admired by many. This county has exhibited at each of our shows and its exhibit has always been one of merit. Santa Clara County, in addition to its feature display, showed some worthy exhibits in box lots and succeeded in winning many prizes. San Benito County was represented by an exhibit that was worthy of mention, as were also the following counties not previously mentioned: Monterey, Los Angeles, Siskiyou, Eldorado, Sonoma, San Luis Obispo, Mendocino and Santa Cruz.

The exhibit of jelly and other domestic by-products was one of the most interesting, especially to the housewives, and were entered by local people. Here were to be found a splendid assortment, neatly arranged, and the result of many days' preparation. One exhibit, that of Mrs. W. H. Varnell, which won first prize, contained over 100 glasses of jelly made from forty-two varieties of apples grown in the Pajaro Valley. The exhibits of Mesdames E. H. Nohrden, J. E. Gardner, F. H. Nohrden, C. E. Peckham and M. A. Resh were deserving of more than passing mention. Their exhibits were attractive and inviting and of superior quality. The evaporation of apples is one of the leading industries connected with the apple industry in the Pajaro Valley and the evaporators have always come to the front with a splendid exhibit of their product. There were about ten tons of fancy stock on exhibition this year. The exhibit of factory products included barreled cider and vinegar, bottled cider and vinegar, jellies and jams. A novel and instructive display that has been in

evidence the past two years is the cold storage apples. These apples were exhibited the year previous and after the show placed in cold storage and then exhibited at the show the following year. Cold storage has done much to improve the marketing conditions of the apple and Watsonville has been

awake to the situation, and through the efforts of the Commercial League a \$250,000 plant was built this year by the Watsonville Ice and Cold Storage Company.

The 100, 50 and 25-box lots were arranged all around the inner walls of the mammoth tent, five boxes high, and

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Fruit Brokers and Importers

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Speciality in Finest Table Apples Packed in Boxes

Please note that we sell all apples personally

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THAT IS NOT EQUIPPED WITH A

Crown Relief Valve

THE SEATLESS VALVE

Insist upon having one. It is the only way to get the greatest satisfaction in pressure regulation and **Avoid All Danger of Blowing Up.**

Most of the prominent makers of power sprayers are now supplying it on their outfits. Don't be misled by any claims of "just as good."

Send for our printed matter and you will quickly see there is none so good. Put one on your old sprayer and double its efficiency.

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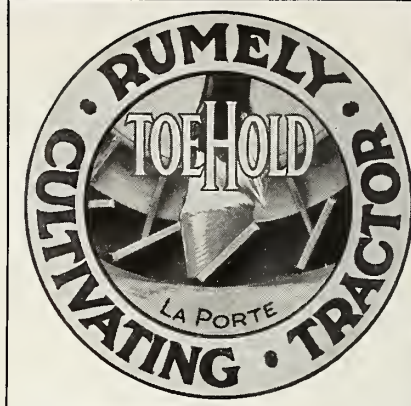
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P.S.—CROWN MASS-O-SPRAY Nozzles are the most effective Spray Nozzles ever made. One Dollar for two of them, by mail. Money back if not the best you ever saw. No strings to this

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Rumely ToeHold Tractor



This machine is a handy low built tractor, especially designed for orchard work.

It Is A Cultivating Tractor. Quick Turning and Easily Handled

This tractor will turn orchard losses into profits. It really cultivates and proper cultivation means success with orchards and vineyards.

Its drive wheel takes hold of the soil like a horses hoof. Leaves the soil ridged, not packed. That's why we call it the ToeHold.

The Rumely ToeHold Tractor will prove generally useful in hauling, threshing, baling or in driving any machine that can be driven with 28 h. p. at the belt.

Owners are loud in their praise of it. Write for their names and letters.

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made an attractive and imposing spectacle. There were ten 100-box lots, ten 50-box lots and twenty-two 25-box lots. Between these and the feature exhibits was a broad aisle, circling the entire tent. Surrounding the feature exhibits were a series of white pillars with lattice work projecting at the top to the left and right, and in which were entwined sprigs of artificial apple blossoms.

Running from the top of the center pole of the tent and connecting with each of these pillars were streamers of evergreens, thus forming a canopy over the whole enclosure. The plate displays, numbering about 1,000, were splendid specimens of the apple, gathered from every apple-producing section of California. The quantity of plates on display would represent about

fifty boxes of packed apples. A prize of 250 apple trees was offered by the Stark Bros.' Nurseries and Orchards Company, Louisiana, Missouri, for the best plate of Delicious and was won by Mr. William Bailey, Sonora, California. Adjoining the large tent and connected therewith were two other good-sized tents filled with industrial exhibits. Everything pertaining to the cultivation of orchards, machinery, spraying material, implements for facilitating the growing, picking, packing and shipping of apples, automobiles and a thousand and one other articles of merit were there to be demonstrated to the public by an efficient army of demonstrators.

The judges of the boxed apples did not finish their task until late Saturday evening, at the close of the week. They were Professor J. L. Dumas of Pullman, Washington; Mr. C. J. Sinsel of Boise, Idaho, and Mr. George E. Rowe of Grand Rapids, Michigan. These gentlemen are thoroughly versed in pomology. The scoring was made from a card adopted by the association, which allowed 1,000 points as a perfect score, made up of 600 points for perfect fruit, 100 for uniform size, 100 for color and 200 for perfect pack. In judging the pack forty points were allowed for bulge, forty for alignment, forty for height at ends, forty for compactness and forty for attractiveness and style. The following were the winners of the sweepstakes prizes in the box lots and their scoring: 100 boxes, Alaga Bros., Watsonville, score



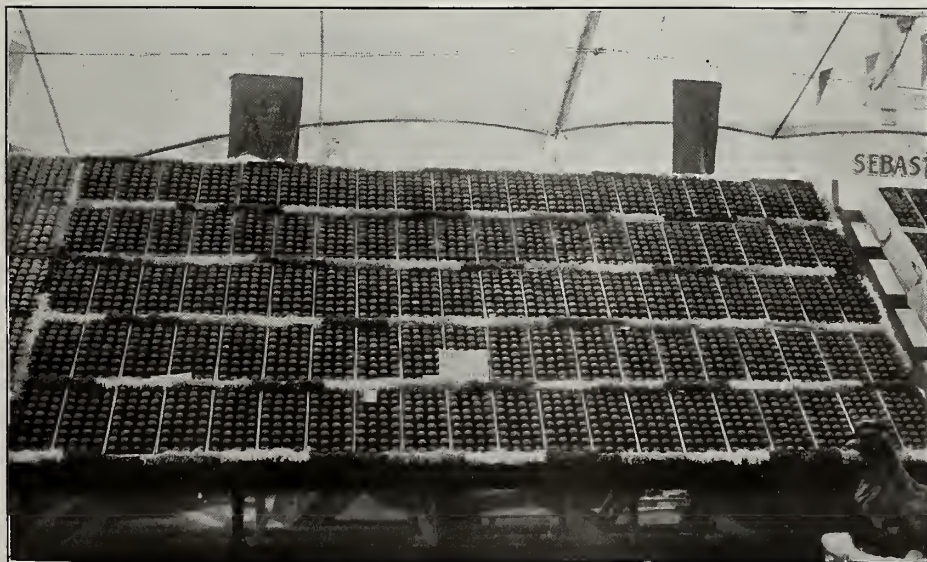
Fac Simile Design of Trade Mark of Western Apple Company. California Apple Show, Watsonville, California, October 7 to 12, 1912.

994½; 50 boxes, A. Balich Fruit Company, Watsonville, score 998; 25 boxes, Stephen Scurich, Watsonville, score 996; 10 boxes, George Nicholson, San Jose, score 997; 5 boxes, W. W. Sunbury, Watsonville, score 1,000; 1 box, W. W. Sunbury, Watsonville, score 1,000. The average scoring of the exhibits was far ahead of those of the previous shows, thereby showing the educational value of scoring, to the end that it stimulates the grower and packer to use only his best fruit and exercise great care in packing. A perfect score of 1,000 points seems improbable, but this enviable record was made by Mr. W. W. Sunbury of Watsonville on his five and one-box lot entries of Newtown Pippins.

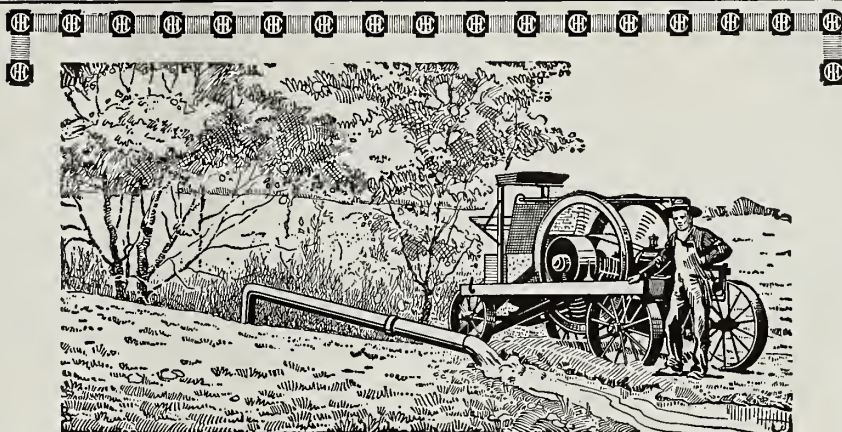
Humboldt County won the first prize for the best exhibit outside of Santa Cruz and Monterey Counties. The best chamber of commerce display was also won by Humboldt. The prize for the best individual display of commercial apples grown in Inyo County was won by Van Bokkelen Bros. The exhibitor winning the greatest number of prizes in the box lots was Stolich Bros. of Watsonville. The best exhibit of apples grown in Santa Clara County was awarded to the Gilroy Chamber of Commerce, Gilroy, California. The best display of apples from Nevada County was that of the Grass Valley Chamber of Commerce, in charge of Mr. D. F. Norton. The Pajaro Valley grower making the best all-around exhibit of apples was Mr. W. M. Angel, Watsonville. All of these exhibitors received valuable prizes donated by various firms and individuals.

One of the interesting events, which is part of the program of every show, is the packing and box-making contests. These are held on the large stage of the auditorium and in full view of the thousands of spectators. The box makers are all given the same quantity of shooks, which they are required to make into perfect boxes. Judges are appointed and a scoring is used, deduct-

ing points for poorly-made boxes. Mr. Stephen Rianda of Watsonville won the contest this year, making 102 complete apple boxes in one hour, which is the world's record. The packing contests



Red Pearmine Exhibit of Alaya Brothers, Watsonville, at the California Apple Show, 1912. This captured the sweepstakes. Alaya Brothers have won the sweepstakes prize for three successive years.



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to furnish the power. I H C engines can be used for many purposes. Their durability and economical use of fuel have proved them to be the cheapest engines on the market. Their simplicity, ease of handling and thorough dependability, have proved them the most satisfactory.

I H C oil and gas engines are built in sizes from 1 to 50-horse power, to operate on gas, gasoline, naphtha, kerosene, distillate, or alcohol. They are built vertical, horizontal, portable, skidded, stationary, air-cooled and water-cooled. Tractors—12, 15, 20, 25, 30, 45 and 60-horse power. There are also many combination outfits—sprayers, hay presses, pumps, etc.

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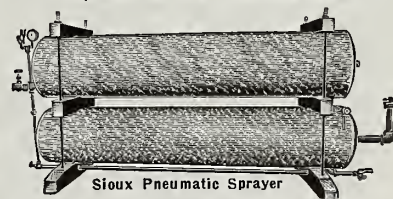
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No engine, pump, or other machinery on the wagon—nothing but two galvanized steel tanks, as shown in cut. Nothing to wear, break, balk or bother. Will last a lifetime. Air in upper tank will spray all solution from lower tank without recharging. Perfect agitation. No lost time. Will do your spraying in less time, at less cost, and will work where other power sprayers cannot be taken. No ground too rough or hilly for it. Can be used any place a team can go. Write today for Circular.

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FRUIT CROP
SAVE YOUR TREES

This Book Is Free

Every fruit grower and farmer should have a copy. It tells about tree enemies—borers, aphids, bark lice, sun scald, etc., and how to fight them—how to increase the amount and quality of fruit crops by removing the outside causes, which sap the vitality of the trees, and protecting them from the scorching rays of the sun.

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Otwell's Tree Paint

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Will help you to get a bigger, better fruit crop.

Otwell's Tree Paint was invented and patented by an expert orchardist, who studied and experimented for ten years on his own orchard. It not only destroys the enemies of the trees, but proves a most lasting benefit to the orchard.

It comes in powdered form. Just mix the contents of the package with cold water and apply to the trunk of the tree when in full leaf. One gallon covers 100 to 300 trees, according to size. Sold by dealers at \$1.50 per gallon size package, 80c per half gallon package.

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MINNEAPOLIS, MINNESOTA

are carried on by the local packers, who are both men and women. Their work was also scored by competent judges. Miss Geneva West of Watsonville won the ladies' contest, packing five boxes in thirty-one minutes. Mr. Peter Scurich won in the men's contest, packing five boxes in thirty minutes.

A department run by the show management worthy of mention, and one that attracts many who crave the "pie like mother used to make," is the refreshment room. Here was found, throughout the day and evening, a bevy of ladies making delicious apple pies and serving them in many styles, the

favorite one being apple pie a la mode—a good, thick, juicy piece of apple pie with a generous lump of ice cream on the crust, which was enough to tempt the most disgruntled dyspeptic. A pie-making contest in this department was one of the features this year, and only girls of fifteen years and under were eligible. It was surprising the quality of pies that were made and baked by the young contestants. This contest originated with the household department of The Country Life Publishing Co., San Francisco, publishers of "Orchard, Farm and Irrigation," who donated cash prizes for this contest. Miss Narcissa Thompson was voted the successful pie maker, with Miss Elma Falkenburg a close second.

Another auxiliary feature of the show conducted by the management was the cider booths, presided over by pretty girls. A nickle would suffice to quench the thirst with this healthy beverage. A booth was established in the center of the main tent, where apples could be procured in any quantity at reasonable prices, ready for shipment. Adjacent was a branch express office, where many hundred packages of apples were sent on their way, all over the United States.

The whole week of the show was one continual round of pleasure. Band concerts, other music, singing by native Hawaiians and dancing were some of the entertainment provided in the pavilion, while on the streets the carnival spirit reigned supreme. Automobile parades, balloon ascensions, industrial parades showing miles of teams delivering apples to the local packing houses, military maneuvers by a regiment of soldiers and many other forms of amusement gave the visitors plenty of fun and entertainment during the week. For the successful management of the 1912 show, as well as of the two previous ones, much credit is due to President O. D. Stoesser and J. E. Gardner, chairman of the finance committee, also to the other loyal directors and to General Manager Harry Perkins, who planned the "Apple Show Different." To the press, local exhibitors and those from other parts of the state, to the neighboring cities and towns for their attendance during the week and to local people, who by their patronage and contributions have made the California Apple Show the leading annual event of the state, the management is exceedingly grateful.

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Here's your opportunity, Mr. Farmer or Orchardist, to get the new 1913 Year Book issued by Stark Bro's Nurseries & Orchards Co., of Louisiana, Missouri. This book is not one of the ordinary sort issued every now and then by "mushroom" nurseries. It is not a jumble of words and phrases that were written by some amateur orchardist.

This book is a "boiled down," complete, concise tabulation of *every* variety of fruit tree, shrub, bush and vine that up-to-date farmers and orchardists are interested in. It is an authentic record of the successes made by all the best known varieties. It is a *history* of the fruit tree, shrub, bush and vine—a book that is honestly of real, every day worth to any man seeking better means of propagation, pruning, spraying, etc.

When you take into consideration the fact that this book is compiled and edited by men actively representing the oldest, best-known nursery in America it will have a weightier meaning to you.

Stark Bro's Nurseries & Orchards Co. have been in business now for 100 years at Louisiana, Missouri, and in all that time we have striven only to give the thrifty, modern orchardist the very *best* that our long experience had taught us. We have converted many a poor-paying, scrubby orchard into a hardy *Stark* payer. We have turned many an orchardist from financial downfall to success through our expert methods of tree-planting, pruning, spraying, etc. We can convert *YOUR* scrubby orchard (if you have one) and make your profits *TWICE* what you've been getting!!!

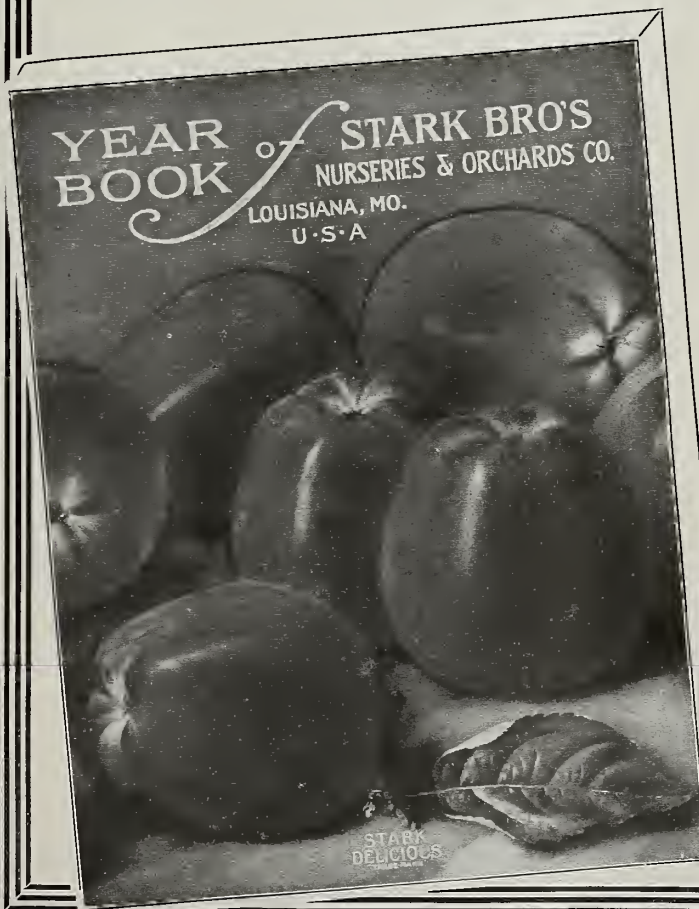
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BETTER FRUIT

HOOD RIVER, OREGON

OFFICIAL ORGAN OF
THE NORTHWEST FRUIT GROWERS' ASSOCIATION
A MONTHLY ILLUSTRATED MAGAZINE
PUBLISHED IN THE INTEREST OF MODERN
FRUIT GROWING AND MARKETING
ALL COMMUNICATIONS SHOULD BE ADDRESSED AND
REMITTANCES MADE PAYABLE TO

Better Fruit Publishing Company

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Entered as second-class matter December 27, 1906, at the Postoffice at Hood River, Oregon, under Act of Congress of March 3, 1879.

The Trustees of the North Pacific Distributors.—The fruitgrowers of the Northwest, realizing the magnitude and importance of the work to be done in planning a central organization for the purpose of bettering the ways and means of marketing the fruit crop of the Northwest, exercised the greatest care in the selection of representatives from each of the districts, and the personnel of the trustees is the highest. In every instance men were selected who were not only broad and liberal but men who were familiar with the fruit industry in their respective districts.

W. T. Clark of Wenatchee Valley is a man of wide reputation and well-known ability. It was Mr. W. T. Clark who, in early days, after being connected with the irrigation ditches in Yakima Valley, went to Wenatchee, planned, promoted and financed the company which put in the big ditches which irrigate the entire valley. Mr. Clark has lived in Wenatchee many years. He is president of the First National Bank, also the big irrigation plant, and in addition is president of the Wenatchee Fruitgrowers' Association, which controls about sixty per cent of the output of that valley; and in addition to all this, Mr. Clark personally owns 700 acres of orchard and 2,000 acres of land.

J. H. Robbins of North Yakima is manager of the Yakima Valley Fruitgrowers' Association. Mr. Robbins came to Yakima Valley from California

and is a man not only well esteemed in this district but a great organizer as well, he having been the one active in organizing the Yakima Valley Fruitgrowers' Association, which was started about two years ago and now controls about fifty per cent of the fruit crop of the Yakima Valley.

H. F. Davidson of Hood River has been engaged in the fruit business, both as grower and shipper, for twenty-two years, having come to Hood River in the year 1890. He was first manager of the Hood River Fruitgrowers' Union at the commencement, in 1893, and afterward organized the Davidson Fruit Company, which is known to the apple dealers throughout the entire United States. The Davidson Fruit Company owns a large cold storage plant, and in addition Mr. Davidson is a fruitgrower, owning 340 acres.

P. J. Neff of Medford represents one of the large and important fruit-growing sections of the Northwest, known as the Rogue River Valley, which is not only famous for apples but is the greatest pear-producing section in the Northwest.

Harry Huber, Milton, represents the Walla Walla district, Milton and Walla Walla being very close together. This district markets not only a large quantity of apples, strawberries and other fruit, but also engages extensively in growing and selling garden truck.

W. S. Thornber of Lewiston, Idaho, is not only one of the best horticulturists in the United States but one of the most popular, for many years occupying the chair of horticulture in the Washington State Agricultural College at Pullman, and consequently has an extensive acquaintance throughout the entire Northwest. Mr. Thornber has a knowledge of the fruit business both as horticulturist and in a practical way. He was the man selected by the Lewiston-Clarkston Land and Water Company to take charge of the care and culture of their immense tract, which is one of the most highly developed in the Northwest.

H. C. Sampson, representing the Spokane district, was manager of the fifth National Apple Show of Spokane. Mr. Sampson has an extensive acquaintance with the fruitgrowers of the Northwest, and his ability is evidenced by the magnitude and success of the apple show in

1912. Mr. Sampson is interested in the fruit industry, otherwise he would not have made the success of the apple show that he did this year.

Wm. Sackett of Hamilton, Montana, is trustee for the State of Montana and is a man well known to all the fruitgrowers in the state, and is prominently identified with the fruit industry.

W. N. Yost of Boise is not only interested in the fruit industry but is a large and successful grower as well. In addition to this, he is president of the Boise Valley Fruitgrowers' Association and has long been interested in bettering the fruit industry in every way. He was one of the successful exhibitors at the Pacific Northwest Land Products Show held in Portland, Oregon, this year.

M. C. Richards of North Yakima is a man recognized by all who know him for his sterling quality and his ability in legal matters. In addition to this, he has taken keen interest in the fruit industry of the Northwest and was one of the prime movers in the organization of the Yakima District Fruitgrowers' Association.

Fifty Millions Invested in the Fruit Industry.—Fifty million dollars is the rough estimate of the capital invested in the fruit industry of Washington, Idaho, Montana and Oregon. It is going to take some brains and some ability to handle the output from this fifty million dollar investment in a successful and businesslike way and to properly distribute it throughout the United States so as to bring the best returns. It is going to require a business organization that is equal to some of the greatest railroads of the United States. A plan to handle this amount cannot be evolved in day, or a week, or a month. It will take many months. Whatever plans may be adopted will be far from perfect in the beginning. It is an easy matter to commence a small business and develop it, but to organize a big business already existing and handle it in a businesslike way, so as to produce a satisfactory return on the capital invested is certainly a big undertaking and one that is going to require the business ability of the ablest men of the Northwest.

Get Away

GET AWAY from the cold winters, hot summers, tornadoes, sunstrokes, blizzards, electrical storms, to a place where they do not occur.

HOOD RIVER is free from all these conditions. Our scenery unsurpassed, our roads macadam and oiled, ranches electric lighted, good water, we are close to PORTLAND, our fruits command the top price, we are up to date.

Send for our printed list of large and small ranches and for our literature. We will furnish you with reliable information.

Write **GUY Y. EDWARDS & CO.**
HOOD RIVER, OREGON

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We have just issued our Second Fruit Growers' Catalog
Your copy is now ready and awaits your request

This catalog is worth asking for. It is full of up-to-date 1913 Spray Pumps and apparatus. Not a back number or a money-loser in it. It shows the Myers Pumps that we carry in stock in the Northwest, the pumps that we have found suitable to this country, no experiments that will cause you to "wish you hadn't bought it," but pumps that have been proven right. It shows the most efficient pruning tools, the most practical spray fittings, the vehicles best suited to your use, and the latest tillage tools. In addition it contains an article,

"When to Spray"

which is well worth reading.

Your dealer can quote you on the Myers Spray Pump which is suitable for your requirements, or you can write us direct. At any rate don't overlook asking for the Fruit Growers' Catalog. Mention "Better Fruit."



MYERS Double Acting Cog Gear Spray Pump

A pump that has been tried out through several seasons' spraying. Cog gear handle makes for easy operation, increasing leverage about 40 per cent.

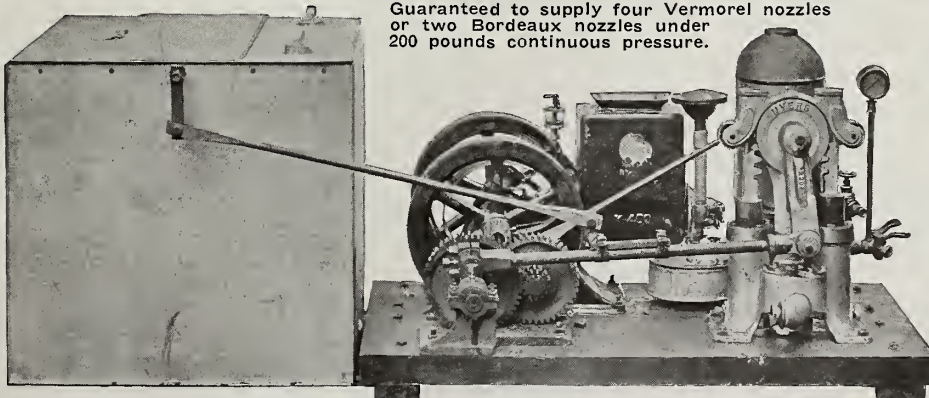
The Valves. It has brass valves and ground brass bevel valve seats. The valves are located on the side of the pump and are easily reached by removing the nut immediately over the valve, which can be done with an ordinary monkey wrench without disturbing the air chamber, suction or discharge pipe. Found only in the Myers Cog Gear Spray Pump.

The Plunger is brass, hemp packed, which adapts it to handling any kind of material, no matter how caustic and either hot or cold.

The Cylinder is a seamless drawn brass tube two inches in diameter, extending full length, removable by using ordinary wrench.

Mitchell Duplex Power Sprayer "B"

This outfit consists of a No. R440 Myers Duplex Spray Pump, a one-horsepower STOVER hopper cooled engine, a special machine-cut gear jack, and a heavy galvanized iron tank with efficient agitator. You can put this aboard your wagon or truck and spray your orchard thoroughly and quickly at light expense.



Guaranteed to supply four Vermorel nozzles or two Bordeaux nozzles under 200 pounds continuous pressure.



MYERS Duplex Cog Gear Spray Pump

The Duplex Spray Pump is rapidly gaining favor. It insures a steady pressure on the nozzle. The Myers cog gear increases your efficiency about 40 per cent. Isn't that a big argument in its favor?

The Cylinders are 2½ inches in diameter, set vertically, so as to allow all sediment to drop down in the lower part of the cylinder.

The Plungers proper are made of 2½-inch heavy seamless drawn brass tubing, which work through a gland packed liberally with hemp packing; is fitted with a heavy brass follower and brass packing ring, by means of which the wear of the packing can be taken up by screwing down on the packing ring.

The Valves and Seats are brass poppet pattern, bevel, ground in.

The Suction Valves are set lower than the discharge valves, so as to assist the suction of the pump.

The Pistons are fitted with cog gears, and operate against the cogs on the handle segment.

The Air Chamber has large capacity; is 8 inches by 16 inches.

The Stroke is 4½ inches.

Other Mitchell Sprayers

We build five different sizes of sprayers, and can fit you out with an outfit that will take care of your requirements, however small or large they may be. Investigate and save money.



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Spokane, Washington
Boise, Idaho

The CUSHMAN

YOU ARE GOING TO SPRAY THIS YEAR

With or without Tower. Wood or Steel. Trucks. 200-250-300-gal. Tanks. 6 or 10 gals. per minute.

MFD BY
CUSHMAN POWER SPRAYER CO.
ST. JOSEPH, MO.



We Manufacture Power Sprayers of all Sizes—all considered by leading orchardists as the

Do It Right—Start Right and Make Money

WITH THE RIGHT KIND OF SPRAYER

Don't waste time and money experimenting with inefficient equipment. Get the Sprayer that has stood the tests—the

Gold Medal Winner The Cushman

DON'T BUY A SUBSTITUTE—GET THE GENUINE

Equipped with 2-h.p. engine and pump mounted on one bed-plate. 100-gallon steel tank. For one or two horses. Notice our special device for shifting the weight.

MOST EFFICIENT HIGH GRADE POWER SPRAYERS BUILT

Something New The Cushman Junior

This illustration will give you an idea of the latest addition to our GOLD MEDAL WINNING LINE OF SPRAYERS—THE CUSHMAN JUNIOR. As the result of an insistent demand for a small power outfit equal in efficiency to our larger outfits, we are offering this year the most complete power outfit for spraying the small orchard, hillside orchard, vineyards and truck gardens. In fact, for use any place that a larger outfit cannot be used to advantage on account of the greater investment or character of the ground. Send for detailed description of this wonderful little power sprayer.

We carry in stock at our Branch Houses a complete stock of sprayer repairs and accessories, such as high pressure spray hose, extension rods, nozzles, tank refilling outfits, engine repairs and accessories.

OUR SPRAYERS ARE GUARANTEED to maintain a pressure of 250 pounds and have a discharge capacity as specified. Address

CUSHMAN MFG. COMPANY

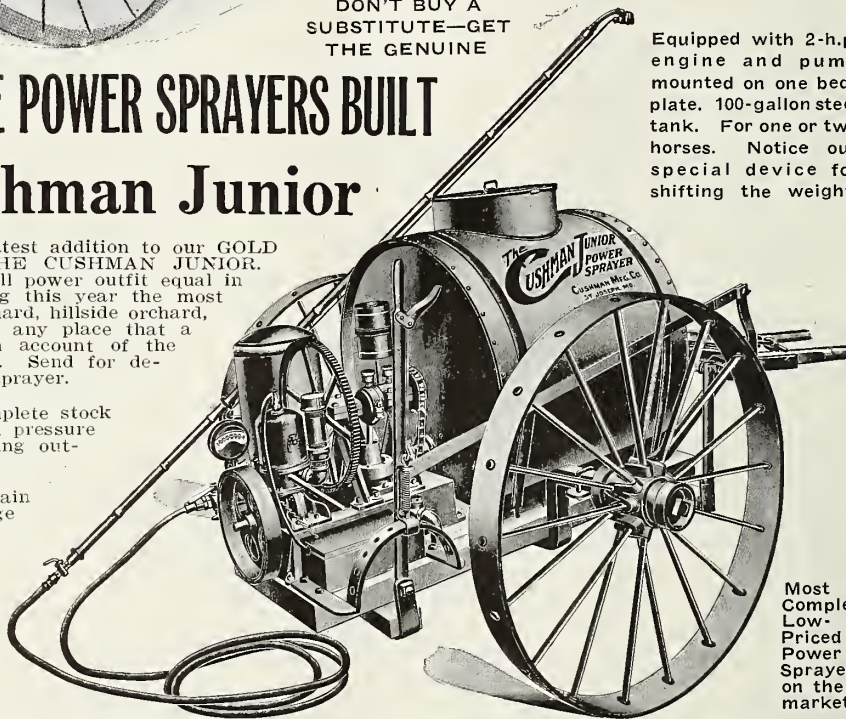
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OR BRANCH
GRAND JUNCTION
COLORADO

OR BRANCH
114 PACIFIC AVE.
SPOKANE, WASH.



Most Complete Low-Priced Power Sprayer on the market.

During the meeting of the Northwest Land Products Show the Oregon Horticultural Society held its annual meeting in Portland. This meeting was largely attended by fruitgrowers from various fruit sections in the State of Oregon. The Oregon Horticultural Society always conducts a very interesting meeting, dealing with two features of the orchard business, the production of fruit, such as the cultivating, pruning, spraying, harvesting, etc., and also with the marketing problems. More attention, for the reason which the fruitgrower will understand, was given to marketing problems than ever before. The Oregon Horticultural Society was one of the first to hold an apple exhibit in connection with the meeting,

which began several years ago in a very small way and has grown until the exhibit contained about a carload of apples, a special hall being secured for exhibit purposes. Through the efforts of Mr. A. P. Bateham, president, in connection with business men of Portland, this year was held for the first time a large show, which, in addition to the display of fruit, contained exhibits of products of the soil from many sections in the Northwest. About 30,000 people attended this show. The interest was so great and the show was such a success that everyone was unanimously in favor of holding this show annually, and it is expected and hoped that next year's show will be not only

larger but grander than the one held this year.

The officers of the Oregon Horticultural Society and the executive committee of the business men of Portland were extremely fortunate in securing the services of Mr. G. E. A. Bond as manager. Mr. Bond having had several years' experience in connection with the National Apple Show held in Spokane, naturally, was from past experience well posted, and consequently, having experience and ability, made the show a grand success. Inasmuch as the February edition contains a large number of splendid illustrations and an article about the show it does not seem necessary to comment further on this feature. In addition to the marketing

problem, which was the principal topic of discussion, a great deal of time was given to our present state horticultural laws. Opinions being somewhat divided resulted in a committee being appointed to give the matter further investigation and formulate a set of laws to present to the legislature. Many are in favor of employing a horticultural commissioner who is to devote his entire time to the work and receive proper compensation from the state. As the committee has not yet made any report it is undecided what they will recommend, but as the men selected are able men it is hoped they will recommend such laws as will be of greatest interest to the largest number.

The Twenty-third Annual Convention of the British Columbia Fruitgrowers' Association.—The editor had the pleasure of attending the annual meeting of the British Columbia fruitgrowers at Victoria, January 6, 7 and 8. The attendance was good and the interest taken in matters brought before the meeting was certainly intense. Association work, the fruit marks act, inspection and marketing were the main subjects that came up for discussion. The meeting was exceedingly interesting and instructive to everyone in attendance. The provincial government is taking a keen interest in the success of the fruit industry in the Province of British Columbia and is endeavoring to assist the industry in every way possible. One feature of the meeting that impressed the editor very strongly was that the attendance was representative of all the different districts. In the United States no plan is made for representation from each district, consequently it frequently happens that no one is in attendance from some of the important fruit-producing sections. The British Columbia association prevents this by having each district send an official delegate. The delegate selected is always a man prominent in the fruit business, well posted, with a good knowledge of the business, consequently the acts and deliberation of the meeting cover the needs of every fruit-

Dwarf Pear Trees

Anjou, Comice,
Bartlett, Howell

ALSO

CHERRIES

Bing, Lambert, Royal Ann

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All choice selected stock
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Roseburg, Oregon



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By strict field supervision, by careful selection of strain and variety, by testing in our perfectly equipped seed testing laboratory we are prepared to offer you a grade of seed that stands the severest test for purity and germination.

Inferior seed is costly, even if it is to be had as a gift. We do not offer bargains or special price inducements—neither do you want them. Buy the best seed—you have only one chance at the same crop.

OUR CATALOG WILL HELP YOUR SELECTION

Our 1913 Seed Annual (published for 22 years) is complete with descriptions and prices of Vegetable, Flower, Grass and Field Seeds, besides a list of all other goods sold by us, such as Spray Materials, Cultivators and Drills, Nursery Supplies, Bee Supplies, Stock Foods, Poultry Foods. This Catalog Mailed Free.

THE CHAS. H. LILLY CO., Seattle and Portland
(Established 1885)

Pedigree Trees

will please you.

It is a Decided Advantage for Fruit Growers

to know for a certainty that the trees they plant are propagated from the best bearing trees in the Northwest.

Write for CATALOGUE, Selected Trees of Certified Pedigree.

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HANFORD, WASHINGTON

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WHITE BIRD FARM

WINTER PROFITS

Can be made
with our

R. I. WHITES

They lay when
eggs are dear
and they help
to make

Better Fruit

Free
Catalogue

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FRUIT GROWERS, YOUR ATTENTION

Royal Ann, Bing and Lambert cherry trees; Spitzenberg and Newtown apple trees; Bartlett, Anjou and Comice pears, and other varieties of fruit trees.

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SCAPPOOSE, OREGON

HOOD RIVER VALLEY NURSERY COMPANY

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Plantation four miles southwest of station, Belmont Road

We will be pleased to show you trees, apple trees that have a heritage, a quality that should be considered by everyone who plants a tree. Our trees are grown in clean hillside virgin red shot soil with clay subsoil, producing the most vigorous root system. Our buds are selected from the best bearing healthy Hood River trees that make the Hood River apple famous throughout the world. Our trees will give you satisfactory results in vigor, fruit and quality. Ask for catalog. We guarantee our products. Apples, pears, peaches, apricots, almonds and walnuts.
H. S. BUTTERFIELD, President

VIRGINIA APPLE ORCHARDS

PAY BIG PROFITS

\$350.00 on long time and easy payments buys a ten-acre Apple Orchard tract in "The Beautiful Shenandoah Valley of Virginia." Other farm and fruit lands \$15.00 per acre and up. Write now for last issue "The Southern Homeseeker," other interesting literature and low excursion rates. Address, F. H. LeBaume, Agt. 1, Norfolk & Western Ry. Bldg., Box 42, Roanoke, Virginia.



5,000,000 Five Million 5,000,000 Pedigree Strawberry Plants

GROWING ON THE KELLOGG PLANT FARM AT CANBY, OREGON

WE have the largest crop of strawberry plants ever grown on the Pacific Coast. The Western fruit growers are going to buy these five million plants because they know from experience that the Kellogg Pedigree Plants are true to name and that every plant is a heavy fruiting plant. Pacific Coast berry growers are making from \$500 to \$1,600 per acre from Kellogg plants.

Grow strawberries in your young orchards and make big money while your trees are coming into bearing. Many growers are doing this. The largest and most profitable crops of strawberries we ever grew were grown in a young orchard.

**We Grow Only the Big Money-Making Varieties and Here
Is a List of Them as Grown at Canby:**

CLARK'S SEEDLING—The variety that made Hood River famous; a wonderful producer and a grand shipper.

MAGOON—The old standby; tried and true variety. It is noted throughout the West for its big crops of big red berries.

NICK OHMER—The prize-winner, famous for its big, fancy berries; without an equal for its shipping qualities and a great seller.

KLONDIKE—The Western berry growers' gold mine; a winner and a big money-maker.

CLYDE—This variety is fast coming to the front on the Pacific Coast. Growers who have tried it say it ranks among the very best. No variety can outdo it in productiveness, and the berries are of a beautiful glossy color.

MARSHALL—A very heavy producer of big, glossy berries; one of the most popular varieties throughout the Coast states.

MOLENA (or MALINDA). Never disappoints; grown very extensively in California; wonderfully productive of the largest berries.

BRANDYWINE—An old tried variety; has been popular on the Pacific Coast for many years; berries as large as the largest; quality of the best. A truly fancy berry.

EXCELSIOR—One of the very earliest, and very productive, too.

GLEN MARY—No variety grows larger berries and more quarts per acre.

EARLY OZARK—Profitable on account of its earliness and productiveness.

WM. BELT—Is destined to become one of the leaders on the Coast. It is truly a grand variety and a great money-maker.

SENATOR DUNLAP—This variety is winning friends throughout the Coast country. Very hardy and exceedingly productive; berries are fine.

WARFIELD—A splendid variety; berries not so large as some varieties, but the fruit is of high quality and splendid for canning.

AUGUST LUTHER—Is not only productive, but berries are sweet and delicious. It is worthy of a place in your berry field.

ARIZONA—A heavy yielder of large, beautiful berries; fast forging to the front on the Coast.

We are in a position to quote attractive prices for high quality plants. It will pay all berry growers to get our prices and our 64-page free book before ordering plants. We guarantee to give you the largest, best developed and finest rooted plants ever grown. We stand back of every plant we sell. A trial order will make you a permanent customer and a Kellogg "booster." Box 355.

R. M. Kellogg Co., Canby, Oregon, and Three Rivers, Mich.

The Luscious, Profitable Yellow Transparent Apple

In a certain orchard at Wyoming, Delaware, is a ten-acre block of early apple trees which the owner repeatedly has refused to sell for \$10,000. It is said to give \$4,800 net profit each year.

The man who grows the very early apples can make a lot of money easily. In June and July apples sell quickly on local markets, and bring very high prices when they reach the big city markets.

You should grow at least all the early apples you can eat at home from the time they first ripen until fall apples are mellow. Ten nine-year Yellow Transparent trees should yield all the apples you can eat and \$40 worth to sell. A hundred trees nine or more years old should give you \$400 a year net profit.

Four Year Trees Yield a Bushel Each

Yellow Transparent is the best early apple for both eating at home and to sell. The apples are perfumed, juicy, rich and spicy—as delicious as strawberries. They are the first apples to ripen in the summer. Yellow Transparent trees begin to bear when they are three years old. They generally produce a bushel each when four years old, and often yield five bushels each when five years old. They thrive anywhere. North or South, low or high.

Get Our Special 1913 Booklet, FREE. It names the four apples that made two-thirds of all the apples profit in the East last year, and tells what kinds of other fruits are most widely planted. Send for it to-day, and ask too, for our big general catalog.

HARRISON'S NURSERIES, APPLE AVE., BERLIN, MARYLAND

Come to Berlin. We'll pay your hotel bill here.
Eastern Shore Farms for Sale. Write for particulars.



producing section in the province. A very important address was made by Hon. Richard McBride, premier for the Province of British Columbia. Other addresses were given by C. W. Baxter, the dominion fruit inspector; H. L. Garroway, manager of the Okanagan Fruit Union. The editor of "Better Fruit" also had the honor and pleasure of addressing the meeting. The meeting was devoted almost exclusively to business problems. Horticultural problems on culture, pruning, spraying, etc., are taken care of at meetings held in the various fruit-growing sections.

A suggestion for increased consumption, by Isaac Tuck of the Produce Bulletin, New York:

Mr. U. Grant Border, Baltimore, Maryland.

Dear Sir: In the October issue of The Spy appears an item which says that the chairman of the advertising committee of the International Apple Shippers Association will greatly appreciate suggestions and ideas concerning the advertising of the apple. I will undertake to give you and your committee a suggestion that may aid you in obtaining a larger consumptive demand for the apple at which I would consider a minimum cost.

My plan is: Have the members of your association in each city where they are located contribute a box or barrel of apples each and have these packages sent to every hospital and charitable institution in that city or vicinity, requesting the physicians and nurses to furnish letters to the donors, giving their opinions on the value of the apple from a dietetic standpoint. What a good story that would make for the New York dailies, especially if the physicians were induced to "speak" of the health-giving properties of the apple. Then let each town get copies of this letter for use in a larger story, covering the donations for the various institutions and incidentally furnishing those papers with extracts from the letters received from the physicians and nurses. The idea is to induce physicians to recommend the use of the apple in the sick room. Once the general public learns through the press of the country that physicians generally are urging the use of the apple as a dietetic then, I say, the demand for the apple will grow as it cannot grow in any other way.

I remember when grape fruit came here in barrels from Florida some twenty-five years ago and they could not be sold for what squash was bringing. But just as soon as physicians recommended grape fruit for invalids, and even healthy people, its demand came suddenly and consumption increased tremendously. Take oranges. Practically the same thing can be applied to them. Oranges are used as an entree for breakfast five times where the apple is used once. In conclusion, I believe that your members can afford to do this, and each city to work up considerable enthusiasm for the fruit, so that physicians and those connected with the institutions will use more apples than they do and recommend their use by others. The cost is trifling, while the advertising that will come from it will be enormous if properly done. As an example, let the members of New York contribute a few boxes or barrels to an institution like Mt. Sinai Hospital or Bellevue Hospital, which are visited by hundreds of physicians daily. In order to make the plan effective it would be necessary to furnish every hospital at the same time and make a big advertising campaign at the start. I believe that the shippers who are members can be induced to contribute some good fruit. I hope that my suggestion may help your committee in its work. With best wishes for your success, The Produce Bulletin, per Isaac Tuck.

The British Columbia Entomological Society held a very interesting meeting in Victoria January 9, at which a number of able addresses were given by prominent entomologists on various diseases and orchard pests. Mr. R. C. Treherne of Vancouver, B. C., is the secretary.

Editor Better Fruit:

Enclosed find a check for another year's subscription. Can't get along without it. Sincerely, W. B. Davis, Spokane, Washington.

Beautifying the Orchard.—In May, 1910, and May, 1911, "Better Fruit" issued two very handsome floral editions. The object of these issues was to impress upon the fruitgrower the importance of doing something to the orchard home which would add to its attractiveness in addition to the commercial valuation. These editions of "Better Fruit" contained many instructions about the varieties of flowers to plant, how to cultivate them, care for them and grow them. It is with great pleasure that we note the effect and results of these two issues. The yards surrounding many of the fruitgrowers' homes which were originally bare, much like the old-style farmyard, now have been transformed, and we find surrounding the fruitgrowers' home beautiful lawns, flowers, ornamental trees, shrubbery and hedges. There is a strong sentiment growing up in the country to remain on the farm. Many of the young people are being sent to agricultural colleges for the purpose of being educated scientifically in orchard growing. If the home is made attractive it simply adds another inducement to the growing child to remain at home, leading a wholesome, independent and profitable life instead of going to the cities and being swallowed up and lost among the millions of workers who simply eke out an existence.

The fruitgrower is beginning to appreciate the value of windbreaks more than ever. Fruit trees will grow much

YAKIMA COUNTY HORTICULTURAL UNION

NORTH YAKIMA, WASHINGTON

E. E. Samson, Manager

Our "BLUE RIBBON" and "RED RIBBON"

BRANDS STILL LEAD

We have placed these famous brands of apples in many new markets during the past few months. Are they in yours? Only about one hundred cars left, and this will probably be the last call.

If you want the best of Yakima apples, with grade and pack guaranteed to satisfy, and our reputation for honest and square dealing achieved during an existence of twelve years back of that guarantee, you should get in touch with us at once.

Prompt shipments of most of the leading varieties made either from North Yakima or from our storage in the Middle West.

BOLTON ORCHARD HEATERS

INSURE YOUR FRUIT FROM FROST

A Known Quantity
Simplicity of Construction
Economy of Operation
Recognized Efficiency

Orders taken now for immediate delivery.

The Bolton Heater Made Good During Recent
Heavy Freezes in Southern California

10% of the producing area of the citrus groves of Southern California were equipped with smudge pots; all other sections suffered more or less.

WRITE FOR BOOKLET

THE FROST PREVENTION COMPANY

BANK OF ITALY BUILDING

SAN FRANCISCO, CALIFORNIA



ORENCO TREES

ONE YEAR TOPS ON THREE YEAR ROOTS

Here Is the Proposition

We will probably have a surplus this year, in some commercial varieties of apples. Rather than carry these trees over another year, by which time they would be too large for general planting, we are offering them on SPECIAL TERMS, that we know will interest you. ORENCO TREES are too well known to require discussion here. If you have the land, we have the trees.

Write for particulars, and state how many acres you would like to plant.

**OREGON NURSERY
COMPANY**
THE
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NURSERY
**ORENCO
OREGON**

faster when protected by windbreaks from the severe winds. Every orchardist who is observing has noticed in countries that are particularly windy during the blossoming season that the crop is frequently much heavier on the side of the tree away from the wind, and every fruitgrower knows too well that severe winds cause a large dropping of the fruit. Consequently much attention is being given to windbreaks, strictly from a commercial standpoint. Evergreens and poplars are especially desirable for this purpose. The more rapid-growing varieties of evergreens make extremely attractive hedges for

the reason that they remain green during the entire year. They are especially adapted to the grounds surrounding the home. We hope that fruitgrowers will give the matter of windbreaks more consideration in the future than they have in the past.

STRAWBERRIES

We have grown and specialized on Strawberry Plants for 40 years. Send for our price list and descriptions.

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Benton Harbor, Michigan

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"The Peach King" and
"The King of Peaches"

**1/3 to 1/2 Larger than Elberta
No Fuzz—Perfect Freestone
Solid Enough to Ship Like
Apples—Finer Flavor, Hard-
ier than Any Elberta**

In my 30 years' experience as a nurseryman and fruit-grower I have never been able to offer fruit-growers such a wonderful profit producer as I do now in the "J. H. HALE" peach. Mr. Hale has consented to market this wonderful peach after 8 years of tests, after 3,000 commercial plantings in every type of peach soil and climate.

For size, flavor, texture, hardness, shipping qualities and salability it is by all odds the best

peach America has ever known. I can quote prices on these trees now for spring planting. Write me today.—WILLIAM P. STARK.

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Smooth skin—without fuzz? Brilliant color and most luscious flavor. 1/3 to 1/2 larger than Elberta, and a better keeper and shipper. Tree is vigorous, hardy and an abundant bearer.

Because of an exclusive contract, we can supply trees propagated direct from buds cut by Mr. Hale from his bearing orchards.

You can get the genuine "J. H. HALE" peach trees nowhere but from William P. Stark Nurseries at Stark City, Missouri.

Be the first in your section to plant this profit wonder and you will skim the cream of the markets with it for the next ten years. Remember the enormous profits that came to the first

growers of the Delicious apple? Some of them made fortunes.

In buying William P. Stark trees you secure vigorous, reliable, selected trees, strong-rooted, free from insects or diseases, and guaranteed true to name by a guarantee that really protects you.

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Name.....

Address.....

**Book Mailed
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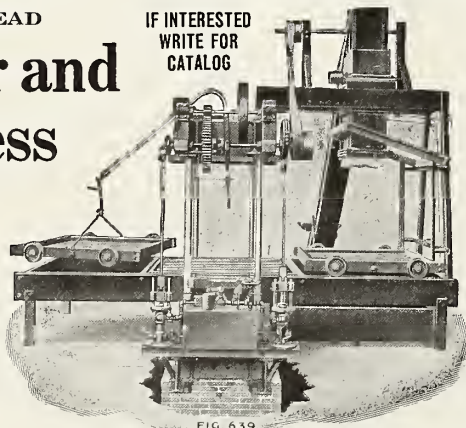
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We have been told so many times that "Better Fruit" is not only the handsomest but the best horticultural paper published in the world that we feel it is not immodest on our part to admit the truthfulness of this statement, and consequently we feel justified in making this assertion. "Better Fruit" is now in its seventh year and has a large circulation throughout the Pacific Northwest States of California, Colorado, Idaho, Montana, Washington, Oregon and Utah, with good subscription lists in the principal fruit-growing states of the Middle West and East. In addition to this, we have subscribers in every state and territory in the Union, with a splendid subscription list in Canada, particularly in British Columbia; and we might add that our subscription list in Canada covers every province. In addition to this, we are extremely proud of our foreign subscription list, and it has always been a matter of wonder to us that our foreign subscription list covers so many countries. It is certainly a compliment to the fruit industry of the Pacific Coast to publish a paper that has a subscription list all over the world. Our subscription list indicates that there must be something in "Better Fruit" that is internationally interesting. While we must admit that our subscription list is only small in many of the foreign countries, it varies from one to fifty-four, making a total of 172 foreign subscribers.

Wise Forethought of the Trustees of the North Pacific Fruit Distributors.—Mr. W. T. Clark, president, has postponed the meeting to be held in North Yakima on January 3 until March, in order to give the trustees further time to work up the plan of organization. Several of the trustees have left for the East to investigate market conditions and post themselves, so as to intelligently handle the big problem that is before the fruitgrowers of the Northwest. The trustees of the North Pacific Fruit Distributors are to be commended for the position they took in reference to the work before them by each agreeing, in case they could not work in harmony with the other trustees, to resign. Such provision and forethought indicates the wisdom of the committee and their earnestness. The committee fur-

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ther pledges itself by a resolution, giving the trustees power to purge themselves of any members who may not be working in perfect harmony.

The American Pomological Society has just issued a bulletin giving advance notice of a meeting to be held in Washington, D. C., about November 5 to 13, 1913. The work of the American Pomological Society is national in its scope, and issues a future catalogue which is prepared in conjunction with the offices of pomology of the United States offices of agriculture. It reports on all new fruits and future conditions in general and issues a quarterly of news items containing general information. Special attention is being given at the present time to the various businesses adapted to the different sections and also to the proper score cards for fruit judging. The secretary is Professor E. R. Lake, now connected with the Department of Pomology of Washington, D. C. Fruitgrowers of the Northwest will remember Professor E. R. Lake, who was for many years connected with the Oregon Agricultural College at Corvallis, Oregon.

The recent Northwest Land Products Show certainly exploded the theory long expressed in certain quarters that "such an exhibition held in a far Western city would produce no good results." It paid from both the educational and financial standpoints, and proved an eye-opener to many of our home people as to the magnificence of the part of the United States in which they live.

Error in Address

In the leading article of the January issue, "Fighting San Jose Scale and Other Insects," the address of the author, Mr. Benjamin W. Douglass, was given as Fowler, Indiana, which was incorrect. Mr. Douglass' address is Trevlac, Indiana.

WANTED

A position by a college trained horticulturist with 4 years' experience in commercial orchards. Can give good references. Address R. L., care "Better Fruit."

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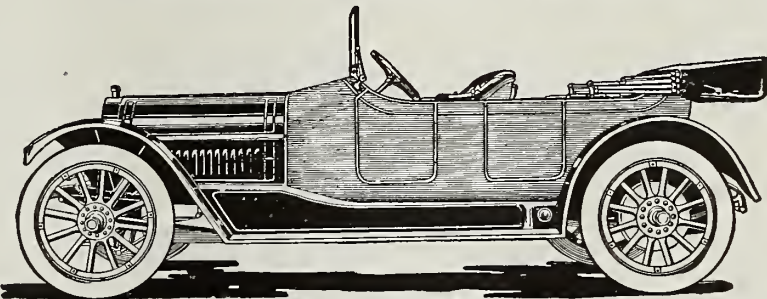
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We know that this improvement—the T-head motor with 6 and 7-inch stroke, and properly balanced bore—is the right idea at last, and the most valuable improvement that has ever been developed in automobile mechanics. Think of an engine like this in a moderate price car. Do more than think about. Ask people who know, and see the car yourself. It is a revelation.

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There are some more things that make the big value in the 1913 Mitchell: The extra long wheel base; the new French Belaise springs; the complete electric lighting system; electric starter—independent of each other, and both operating from driver's seat.

We want to emphasize the fact that this big value of the Mitchell 1913 cars has been obtained without any sacrifice of the high standard of material and workmanship always maintained in our plant.

All Mitchell 1913 cars have left drive and center control; Bosch ignition; Firestone demountable rims; rain-vision wind-shield; Jones speedometer; silk mohair top and covers; Turkish upholstered cushions; Timken front axle bearings; gauges on the dash to show air pressure and oil pressure; gauge in the gasoline tank which shows the amount of gasoline it contains; and a portable "trouble-finding" electric lamp which can be conveniently attached.

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All with T-head motor, electric self-starter, electric lighting system, and 36-inch wheels

	Motor	Wheel Base	Price F. O. B. Portland, Seattle, Spokane, Boise
7-passenger Six	60 H. P., 4½x7 in.	144-in.	\$2,650.00
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Northwest Fruit Growers' Unions and Associations

We publish free in this column the name of any fruit growers' organization. Secretaries are requested to furnish particulars for publication.

Oregon

Albany Fruit Growers' Union, Albany.
Ashland Fruit and Produce Association, Ashland.
Benton County Fruit Growers' Association, Corvallis.
Brownsville Fruit and Produce Association, Brownsville.
Coos Bay Fruit Growers' Association, Marshfield.
Coveille Valley Fruit Growers' Union, Myrtle Point.
Cove Fruit Growers' Association, Cove.
Dallas Fruit Growers' Association, Dallas.
Douglas County Fruit Growers' Association, Roseburg.
Dufur Valley Fruit Growers' Union, Dufur.
Dundee Fruit Growers' Association, Dundee.
Estacada Fruit Growers' Association, Estacada.
Eugens Fruit Growers' Association, Eugens.
Hood River Apple Growers' Union, Hood River.
Hyland Fruit Growers of Yamhill County, Sheridan.
Imbler Fruit Growers' Union, Imbler.
La Grande Fruit Association, La Grande.
Lincoln County Fruit Growers' Union, Toledo.
McMinnville Fruit Growers' Association, McMinnville.
Mil'ou Fruit Growers' Union, Milton.
Mosier Fruit Growers' Association, Mosier.
Mount Hood Fruit Growers' Association, Sandy.
Newburg Apple Growers' Association, Newburg.
Northwestern Fruit Exchange, 418 Spalding Building, Portland.

Northeast Gaston Farmers' Association, Forest Grove.
Oregon City Fruit and Produce Association, Oregon City.
Rogue River Fruit and Produce Association, Medford.
Salem Fruit Union, Salem.
Santiam Fruit Growers' Association, Lebanon.
Springbrook Fruit Growers' Union, Springbrook.
Stanfield Fruit Growers' Association, Stanfield.
Sutherlin Fruit Growers' Association, Sutherlin.
The Dalles Fruit Growers' Union, The Dalles.
Umpqua Valley Fruit Growers' Association, Roseburg.
Washington County Fruit Growers' Association, Hillsboro.
Willamette Valley Prune Association, Salem.

Washington

Apple Growers' Union of White Salmon, Underwood.
Bay Island Fruit Growers' Association, Tacoma.
Brewster Fruit Growers' Union, Brewster.
Buckley Fruit Growers' Association, Buckley.
Cashmere Fruit Growers' Union, Cashmere.
Clarkston Fruit Growers' Association, Clarkston.
Cowlitz Fruit and Produce Association, Kelso.
Dryden Fruit Growers' Union, Dryden.
Elma Fruit and Produce Association, Elma.
Felida Prune Growers' Association, Vancouver.
Garfield Fruit Growers' Union, Garfield.
Goldendale Fruit and Produce Association, Goldendale.
Grandview Fruit Growers' Association, Grandview.
Granger Fruit Growers' Association, Granger.
Kalama Fruit Growers' Association, Kalama.
Kennewick Fruit Growers' Association, Kennewick.
Kiona Fruit Growers' Union, Kiona.
Lake Chelan Fruit Growers' Association, Chelan.
Lewis County Fruit Growers' Association, Centralia.
Lewis River Fruit Growers' Union, Woodland.
Mason County Fruit Growers' Association, Shelton.
Mount Vernon Fruit Growers' Association, Mount Vernon.
Northwestern Fruit Exchange, 510 Chamber of Commerce Building, Spokane.
Peshastin Fruit Growers' Association, Peshastin.
Pulman Fruit Growers' Association, Pullman.
Puyallup and Sumner Fruit Growers' Association, Puyallup.
Spokane County Horticultural Society, Spokane.
Spokane District Fruit Growers' Association, Spokane.
Spokane Inland Fruit Growers' Association, Kelso.
Spokane Valley Fruit Growers' Co., Otis Orchards.
Spokane Valley Fruit Growers' Union, Spokane.
Southwest Washington Fruit Growers' Association, Chs-hals.
Stevens County Fruit Growers' Union, Myers Falls.
The Green Bluffs Fruit Growers' Association, Mead.

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The Ridgefield Fruit Growers' Association, Ridgefield.
The Touchet Valley Fruit and Produce Union, Dayton.
Thurston County Fruit Growers' Union, Tumwater.
Vashon Fruit Union, Vashon.
Walla Walla Fruit and Vegetable Union, Walla Walla.
Wenatchee District Fruit Growers' Union, Wenatchee.

Wenatchee Valley Fruit Growers' Association, Wenatchee.
White River Valley Fruit and Berry Growers' Association, White Salmon.
White Salmon Fruit Growers' Union, White Salmon.
Yakima Valley Fruit Growers' Association, North Yakima.
Yakima Valley Fruit and Produce Growers' Association, Granger.

Yakima County Horticultural Union, North Yakima.
Zillah Fruit Growers' Association, Toppenish.

Idaho

Boise Valley Fruit Growers' Association, Boise.
Caldwell Fruit Growers' Association, Caldwell.
Council Valley Fruit Growers' Association, Council.
Emmett Fruit Growers' Association, Emmett.
Fruit Growers' Association, Moscow.
Lewiston Orchards Assembly, Lewiston.
Lewiston Orchards Association, Lewiston.
Nampa Fruit Growers' Association, Nampa.
New Plymouth Fruit Growers' Association, New Plymouth.

Parma-Roswell Fruit Growers' Association, Parma.
Payette Valley Apple Growers' Union, Payette.
Southern Idaho Fruit Shippers' Association, Boise.
Twin Falls Fruit Growers' Association, Twin Falls.
Weiser Fruit and Produce Growers' Association, Weiser.
Weiser River Fruit Growers' Association, Weiser.

Colorado

Boulder County Fruit Growers' Association, Boulder.
Capital Hill Melon Growers' Association, Rocky Ford.
Crawford Fruit Growers' Association, Crawford.
Delta County Fruit Growers' Association, Delta.
Denver Fruit and Vegetable Association, Denver.
Fair Mount Melon Growers' Association, Swink.
Fowler Melon Growers' Association, Fowler.
Fremont County Fruit Growers' Association, Canon City.
Granada Melon Growers' Association, Granada.
Grand Junction Fruit Growers' Association, Clifton, Palisade, Grand Junction.

Kouns Party Cantaloupe Growers' Association, Rocky Ford.

Lamar Melon Growers' Association, Lamar.
Longmont Produce Exchange, Longmont.
Loveland Fruit Growers' Association, Loveland.
Manzanola Fruit Association, Manzanola.
Manzanola Orchard Association, Manzanola.
Montrose Fruit and Produce Association, Montrose.
Newdals Melon Growers' Association, Swink.
Palisade Fruit Growers' Association, Palisade.
Paonia Fruit Exchange, Paonia.
Pent County Melon Growers' Association, Las Animas.
Produce Association, Debeque.
Rifle Fruit and Produce Association, Rifle.
Roaring Fork Potato Growers' Association, Carbondale.
Rocky Ford Melon Growers' Association, Rocky Ford.
San Juan Fruit and Produce Growers' Association, Durango.

The Producers' Association, Debeque.
Western Slope Fruit Growers' Association, Palisade.

Montana

Bitter Root Fruit Growers' Association, Hamilton.
Missoula Fruit and Produce Association, Missoula.
Woodside Fruit Growers' Association, Woodside.

Utah

Bear River Valley Fruit Growers' Assn, Bear River City.
Brigham City Fruit Growers' Association, Brigham City.
Cache Valley Fruit Growers' Association, Wellsville.
Centerville Fruit Growers' Association, Centerville.
Excelsior Fruit and Produce Association, Clearfield (post office Layton R. F. D.)
Farmers & Fruit Growers' Forwarding Assn, Centerville.
Green River Fruit Growers' Association, Green River.
Ogden Fruit Growers' Association, Ogden.
Springville Fruit Growers' Association, Springville.
Utah County Fruit and Produce Association, Provo.
Willard Fruit Growers' Association, Willard.

California

California Farmers' Union, Fresno.
California Fruit Exchange, Sacramento.
Fresno Fruit Growers' Company, Fresno.
Lincoln Fruit Growers' Association, Lincoln.
Lodi Fruit Growers' Union, Lodi.
Loomis Fruit Growers' Association, Loomis.

Newcastle Fruit Growers' Association, Newcastle.
Penryn Fruit Growers' Association, Penryn.
Sebastopol Apple Growers' Union, Sebastopol.
Sebastopol Berry Growers' Union, Sebastopol.
Stanislaus Farmers' Union, Modesto.
The Supply Company of the California Fruit Growers' Association, Los Angeles.
Turlock Fruit Growers' Association, Turlock.
Vacaville Fruit Growers' Association, Vacaville.
Winters Fruit Growers' Association, Winters.

New Mexico

San Juan Fruit and Produce Association, Farmington.

British Columbia

Armstrong Fruit Growers' Association, Armstrong.
Boswell-Kootenay Lake Union, Boswell.
British Columbia Fruit Growers' Association, Victoria.
Creston Fruit and Produce Exchange, Creston.
Grand Forks Fruit Growers' Association, Grand Forks.
Hammond Fruit Association, Ltd., Hammond.
Hatzic Fruit Growers' Association, Hatzic.
Kaslo Horticultural Association, Kaslo.
Kelowna Farmers' Exchange, Ltd., Kelowna.
Kootenay Fruit Growers' Union, Ltd., Nelson.
Mission Fruit Growers' Association, Mission.
Okanagan Fruit Union, Ltd., Vernon.
Queens Bay Fruit Growers' Association, Queens Bay.
Salmon Arm Farmers' Exchange, Salmon Arm.
Summerland Fruit Growers' Association, Summerland.
Victoria Fruit Growers' Exchange, Victoria.
Western Fruit Growers' Association, Mission.

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If interested write for prices. Address

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The Subject of Cutting Back

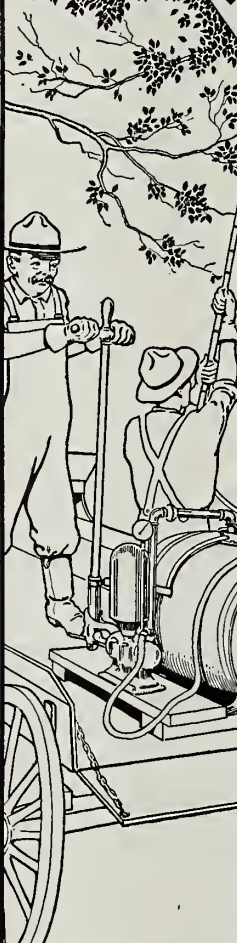
By H. D. Clark, Wenatchee, Washington

THERE are four distinct reasons for cutting back limbs, namely, cutting back for the purpose of causing the branches to grow out directly below the cut; second, cutting back for position; third, cutting back for strength; fourth, cutting back to induce fruit or to check excessive growth. The first three prunings have to do with the shape and only perform their purpose when done in the winter. The fourth is a mid-summer or later pruning. Cutting back for branches is the most important for the four reasons, as by its practice the tree's stature and shape is produced, and the bearing area established and maintained. To build a heavy, substantial skeleton work should be the primary object in pruning young trees. After the second or third year's growth, only the main branches or leaders being left on at the previous winter pruning, and they are four and one-half to six feet high, from ten to twelve inches should be cut off the top of each to throw out laterals (side branches). The cut of ten inches or more is necessary to get strong and upright branches from the buds below the cut.

These laterals are part of the permanent structure. Whenever the leader has made over three and one-half feet additional growth it should be cut back to within three and one-half feet of the first cut and the processes repeated the third time, with the same three and one-half foot space. The tree will be six or seven years old before the three series of laterals are well established. This constitutes the skeleton work or supporting wings, which should always remain upright. As the tree is in full bearing at this time the growth is small, and any limbs above the third series laterals are apt to bear before they require size enough to be self-supporting. However, if a larger tree is desired, the fourth and fifth laterals can be produced by keeping the fruit off the tops of leaders and cutting back as for the first three series, except the series may be three feet apart. A great deal of fruit may be borne directly, and on small twigs on the structure limbs, but the real bearing area is on limbs of the laterals or sub-laterals. On most varieties these come out naturally, but cutting back insures their coming out, and they can be produced where and when desired.

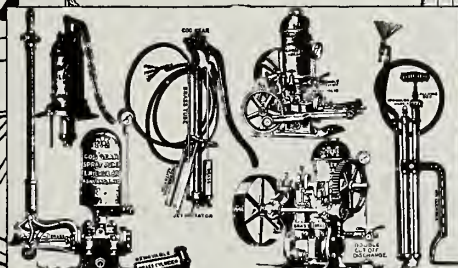
Whenever a cut-back is made position must be considered. A high cut above a bud causes the resulting limb to start rather horizontally and grow upright at an angle of the original limb. To cut close to the bud produces a straight continuation of the original limb. The high cut is practiced on leaders on the windward side of the tree and the close cut on the other side, commonly, though, either cut may be made to an advantage on any position of the tree. Where limbs desired for permanent laterals grow too horizontally or do not fill the space next to them, where a lateral is needed a high

MYERS SPRAY PUMPS



Now is the time to think about Spring Spraying and Myers Spray Pumps. Spraying is now compulsory in many states; is advised and urged by Experimental Stations, and is given careful consideration at all County and State Grange Roundups and Farmers Institutes, so that there is no longer any question about the absolute necessity of Spraying at the Right Time in order to obtain proper results and Perfect Fruit. Spring Spraying starts in February and March. Some spray even earlier. To get the best results you must be prepared to Spray the Myers Way with a Myers Outfit—Bucket, Barrel or Power—according to your spraying requirement.

You are not indifferent to the advantages of Successful Spraying, but you may not be properly equipped. Get in touch with us for convincing information. Write for our new Spray Catalog which, besides giving you valuable information concerning the proper methods and time for spraying, formulas, etc., also illustrates and describes an unequalled line of Spray Pumps, Spray Nozzles, Pipe Extensions and Spray Accessories—A Line For Every Spraying Need.



F. E. MYERS & BRO.
120 ORANGE STREET - ASHLAND, OHIO.

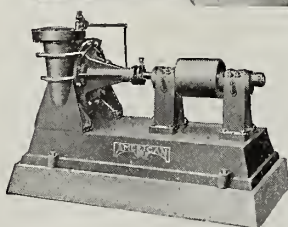
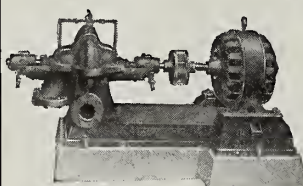
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Portland, Oregon; Spokane, Washington; Boise, Idaho

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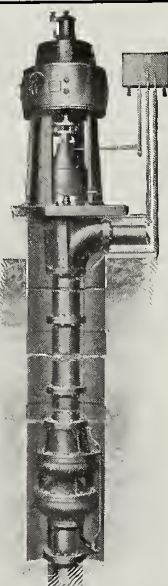
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Lime-Sulphur Solution AND Neutral Lead Arsenate

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About Thirty Thousand Budded Apple Trees

No. 1, 4 to 6 feet grade, 1 year old, in varieties as follows:

Arkansas Black, Gravenstein, Grimes Golden, Jonathan, King of Tompkins County, Northern Spy, Rome Beauty, Stayman Winesap, Esopus Spitzenberg, Wagener, Winesap, Winter Banana and Yellow Newtown Pippin.

Prices right.

Christopher Nurseries Co.

John A. Stewart & Son, Proprietors
CHRISTOPHER, KING COUNTY, WASH.

cut above the proper bud will throw the new growth out at an angle upright in the first place and at an abrupt angle toward the open space in the second case. Both cuts should be very severe, as a single limb from the bud is desired.

This is explained as cutting for strength. To get strength from cut-back the cut must be severe, taking at least two-thirds of the previous year's growth, though more is better, the strength of the new growth being according to the amount of cut-back. A cut of one-fourth of one-year-old wood results in five to eight new shoots below the cut; a cut of one-half, from three to five new limbs; of two-thirds, two to three new limbs; more than three-fourths, only one strong limb, though there may be one or two weak twigs below. With lighter cuts the limbs are nearly equal in size, but with cuts with over two-thirds the greater the proportion between the top limbs and the other an exception to this occurs occasionally. It must be understood that cut-backs to buds must be made only in one-year-old wood. Cutting back to induce fruiting checks the growth of the limb cut back. As stated, this is done in the summer and after the season's heavy growth is over. The fall growth usually being much less than the early growth, the buds back of the cut-back just have time to swell before the tree stops growing. This should only be practiced on other than structural limbs and not before the fourth year. The setting of fruit buds and spurs can be expected in proportion to the amount of check the tree gets and the age of the tree.

All these reasons and effects of cutting back will apply similarly to the cutting back of any branch to some one of its side branches. When cutting a large limb off to a small side limb, or to any side branch at an abrupt angle, always leave one-half of an inch of a stub. A close cut, especially if slanting, will cut off the sap supply and the new top will make poor growth for a number of years.

Editor Better Fruit:

Enclosed find one dollar to renew my subscription. I can't be without this paper at present, because it tells me so much that is new of marketing our fruit. Frank Engler, Victor, Montana.

Thirty-Four Years' Experience

Growing nursery stock True-to-Name, which won our reputation. We have a complete line of nursery stock from which to choose. Our customers are guaranteed entire satisfaction. As usual we will have a splendid lot of

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One of the Largest and Best Equipped Nursery Plants in the United States

Make a Specialty of a Complete Line of General Nursery Stock
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Continued from page 26

would hardly recognize him in his suit of Indiana red. Indiana is in the apple belt, as was demonstrated by the quality of exhibits shown at the two annual apple shows. This show is held under the auspices of the Indiana Horticultural Society and is directly governed by an apple show commission. It is not dominated by cliques of land sharps or orchard land promoters. It is purely an educational feature. Every day throughout the show week an educational program was given by experts from Purdue University. Questions of vital interest to the orchardist were discussed each day. One session was devoted to the young orchard, another to the bearing orchard, another to marketing problems and another to packing demonstrations. These features, as well as the stimulus of the excellent exhibits shown on the floor, are having a great deal to do with the bettering of horticultural conditions in Indiana. A large number of the 1912 exhibitors were spectators at the 1911 show. They received the necessary instruction at the 1911 show and then went home and put it into practice. The winner of the grand sweepstakes prize of the show was in this class. In 1911 Mr. H. V. Elrod came to the show to "look around." He had already been caring for his orchard, but knew very little about packing. He followed every move of the packing demonstrations and then went home to practice. Four years ago Mr. Elrod took charge of his present orchard. It was then a jungle, used as a combination calf and hog lot. The land was raising much better calves and hogs than it was apples. "Uncle" Joe A. Burton, the apple king of Indiana, had often remarked to Mr. Elrod, "Harry, how can you afford to pay me five and six dollars a barrel for my Grimes? Why don't you raise them yourself?" After securing this old, neglected, run-down orchard, Mr. Elrod decided that he would at least try to make that old pasture lot produce some apples. He turned the calves and hogs out and then mulched the trees, one

CORONA DRY POWDERED ARSENATE OF LEAD

Here is a Dry Powdered Arsenate of Lead that stays in suspension longer than any other arsenate of lead—dry or paste—has greater spreading properties, and holds longer on the sprayed leaves and fruit.

A new chemical and scientific discovery, of amazing value to fruit growers. Manufactured by an entirely new process. Patent applied for. Different from and superior to any similar insecticide. Mixes quickly and easily in water. No sediment. No lumps. No waste. Never clogs spray nozzles. The pest-killer to depend on.

Codling Moth, commonly called APPLE WORM—attacks any variety of apples. Little Turk or PLUM CURCULO—attacks plums, peaches and apples. Both these pests are great money-losers for fruit growers in all sections.

These losses are avoidable. It is now entirely possible to control, to exterminate, these and other fruit-destroying insects. But one must do the right thing at the right time. The answer is—Spray with Corona Dry Powdered Arsenate of Lead.

Corona Dry Powdered Arsenate of Lead removes every objection heretofore raised against such insecticides. It contains nothing but lead oxide and arsenic oxide, the only two essentials of an arsenate of lead. The difference between Corona and all other arsenates of lead—dry or paste—lies in the process of manufacture, and in this alone. The Corona product combines convenience, economy and efficiency. It has been put to test and proved to have the highest per cent of actual killing power.

Never before has there been a satisfactory dry arsenate of lead. The old-fashioned acetate or nitrate precipitating processes give a heavy, coarse substance, which quickly settles in the spray tank, making impossible a uniform strength of spray.

Corona Dry Powdered Arsenate of Lead is as soft as cotton and as fine as flour. Being lighter, finer and fluffier, it stays in suspension longer, has better spraying properties and adheres longer to the foliage. Less is required to each batch of spraying solution. Use one to one and a half pounds to fifty gallons of

water or fungicide. Study the illustration here shown and see the superiority of the Corona product.

One pound of Corona Dry Powdered Arsenate of Lead will do the work of two to three pounds of paste arsenate of lead—and do it more thoroughly. The Corona Dry Powdered Arsenate of Lead is more simple, cleaner and easier to handle than a paste material. Cannot freeze, dry out, cake or lose its strength. It has always the same high point of efficiency.

We can prove the unusual qualities of Corona Dry Powdered Arsenate of Lead by figures, testimonials and sworn tests. Every orchardist should write for illustrated booklet and further information about this new discovery. Ask about our consulting and service department. Write today—now. Address

Department E

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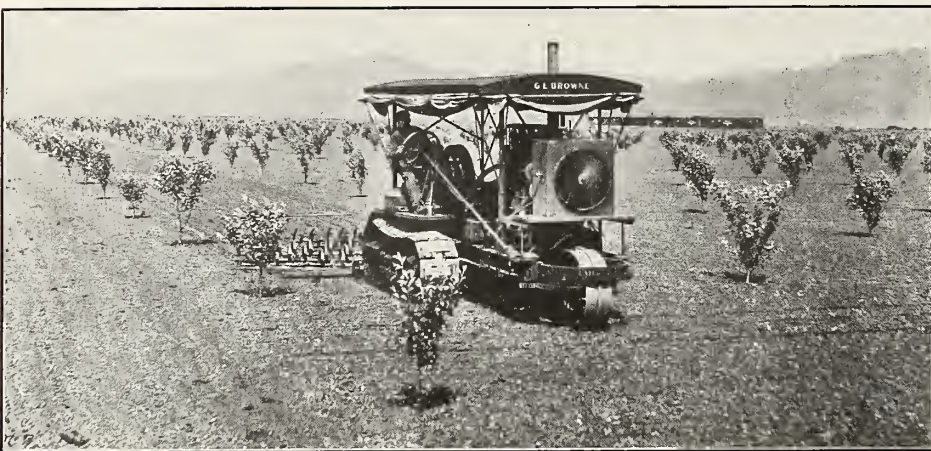
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are adaptable to scores of uses in house, barn, garden, orchard. This No. 259 ("Aqua-pult") is double acting—gives continuous stream 50 to 60 feet with straight nozzle. 81 years at pump making make us authorities on pump problems. Free Booklet describes this and sixteen other models with prices. Send for it now. Ask your dealer; if he has none we will supply you.

W. & B. DOUGLAS
Pump Makers for 81 Years
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FIG 259



Portland, Oregon, December 26, 1912.
Editor Better Fruit:

It has occurred to me that the experience of the Spokane Apple Orchard Company in handling their seven-hundred-acre orchard would be of interest to you and your readers, and I, therefore, give you herewith a brief description of their experiences. The cultivation of an orchard of this size is a serious problem for all orchardists and the success of this company means much to the orchard interests of this country. It is necessary that the ground should be ceaselessly worked through the spring and summer months that all available moisture may be conserved for the nourishment and growth of the trees.

Many methods had been tried and found unsatisfactory. When horses were used the work itself was found to be indifferent in effect, while large barns must be maintained, feed provided and a large number of men employed to care for them in and out of the field. No better success was obtained with Wheel Traction Engines. The large drive wheels would pack the soil, a result entirely at variance with that desired, while great difficulty was experienced in turning at the end of the rows without injuring the trees. The trees are spaced twenty-two feet apart and the Tractor must be built low in order to have good clearance both at the ends and in between the rows.

Not until the attention of MR. G. E. BROWNE, president of the SPOKANE APPLE ORCHARDS, was called to the HOLT CATERPILLAR GAS TRACTOR was the solution of their difficult problem found. Here was a Tractor that was entirely different in construction and operation. Instead of the large drive wheels there were endless chains composed of steel shoes linked together, that the Engine carries along, lays down, rolls over and picks up again.

The bearing surface of these chains (which are called "Tracks") on the ground is about 2,500 square inches, eight times greater than that of the wheel engines. It is an obvious fact that thus distributing the weight of the Engine over such a large surface produces the same result as that accomplished by a man who places a board across a mud hole and walks on the board. The board holds him up—he does not sink; which in the case of the Caterpillar means that the soil will not be packed, since the ground pressure exerted by the Engine to the square inch is less than one-half that of a horse.

Again, on account of the Engine not being elevated on large wheels it lies very close to the ground, so low that it can easily pass in any orchard. The Caterpillar is so constructed

that each side may be driven separately, which has the effect of causing it to be turned in a space no larger in diameter than its own length, assisted by a single wheel in front instead of two. This eliminates the former difficulty experienced in turning at the ends of rows.

Thorough investigation showed Mr. Browne that the Caterpillar was being successfully used in all kinds of work all over the world, and recognizing its advantages to him, he placed his order. The Engine was delivered early in February, 1912, work started immediately and the seven-hundred-acre tract cultivated continuously until September 15th of the same year. During this period the seven hundred acres were covered almost fourteen times, back and forth, in and out, until 9,600 acres had been cultivated at a cost of 26 cents an acre, including interest on the investment and depreciation. It is estimated that this Engine traveled 3,900 miles in cultivating this acreage.

Better than all other considerations is the wonderful growth of the trees under this treatment. The two pictures on this page show the trees in May, three months after the work started, and in September, when it ended. Please note the remarkable growth of four months and the excellent appearance of the cultivated soil. The problem has been solved and all other methods improved upon. One can hardly imagine a more impressive scene than seven hundred acres of fruit trees, geometrically exact in arrangement, and not a weed nor a blade of grass to be seen on the level floor of the orchard as far as the eye can reach. Thus, while the problem for the large orchardist has been solved, the man with a smaller tract had, until very recently, been neglected. With the advent, however, of the 30 Horse Power Caterpillar, known as the Baby Caterpillar, an opportunity is given to the smaller orchardist, or community of smaller orchardists, to procure a Tractor which will answer their needs. Wishing you and yours and your readers the compliments of the season, I beg to remain yours very truly,
[Advertisement] J. W. HILL.

Editor Better Fruit:

Please find enclosed check for "Better Fruit." I don't want to be without "Better Fruit," as it has been invaluable to me. "Better Fruit" has been horticulturist, expert, director and foreman in all work and I have had as good results as any. Thanking you for the privilege of being a subscriber, yours truly, W. A. Arnold, Creswell, Oregon.



load of straw to the tree. He pruned and sprayed after the latest advices from Purdue and that first season, from those 115 neglected trees, he harvested \$500 worth of fruit. Each year he repeated his orchard operations, and in 1910 took \$700 from his trees; in 1911 they produced him \$800 and 1912 he harvested \$1,600 worth of excellent fruit. At the recent show Mr. Elrod made nine entries in the box classes and captured seven prizes, besides the sweepstakes ribbons in the single and five-box classes. One box out of the sweepstakes five boxes scored 99 and won the grand sweepstakes prize of the show—\$200 cash and a silver cup. From Mr. Elrod's nine entries he won \$255.75 in cash, three sweepstakes ribbons and a handsome silver cup. Mr. Elrod's success demonstrates conclusively what can be done with neglected orchards in Indiana when handled under proper directions.

Mr. H. M. Widney of St. Joe, Indiana, was the largest winner of first prizes of the show. He carried away twenty-two blue ribbons, nine red ribbons and five white ribbons, as well as third prize in the individual orchard class. These prizes netted him a total of \$318. Mr. Widney chartered a special inter-urban car to carry his exhibits to the show. After the show this carload of prize fruit sold at a handsome profit on the Indianapolis market.

The prizes offered in the individual orchard class were very liberal. The first premium, a \$350 power outfit, was donated by the Fairbanks-Morse Manufacturing Company. The second and third prizes, \$100 and \$50 respectively, were supplied by the management. This class called for a display of commercial varieties, fifty bushels or more, of not less than five varieties and not less than



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ten boxes of any one variety. This class made a very interesting display, as exhibitors entered from all sections of the state. This insured a display of the leading commercial varieties from all sections. The Heacock Fruit Company of Salem, Indiana, won first in this class as well as \$119.75 in cash and the sweepstakes ribbon in the 25-box class. The Burton Fruit Company of Mitchell won second prize as well as \$152.25 in cash in other classes. H. M. Widney of St. Joe won third prize. Classes were also offered for the home orchardist, the public institution orchard, for artistic exhibits, for exhibits of creditable seedlings, for the best single box, five-box, twenty-five box, tray and plate, as well as for special entries for valuable merchandise premiums donated by numerous orchard supply firms. The aggregate cash liability of the premium list amounted to between \$3,000 and \$4,000. All classes were filled with creditable exhibits and the management considers the premium money as money well spent.

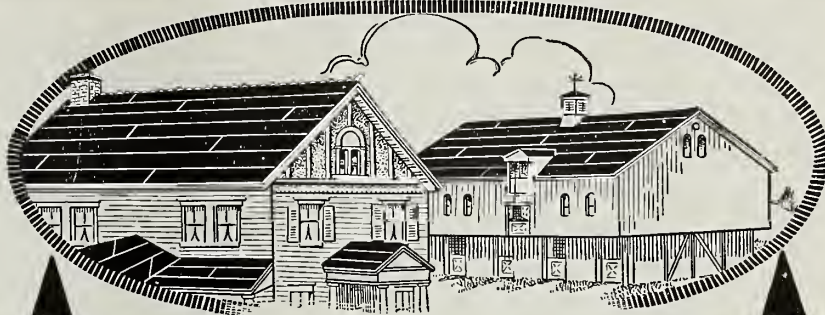
The Indiana Apple Show and the Indiana apple have both gone beyond the experimental stage—they are both here to stay. The day of the cider apple is past. Indiana apples, grown by proper methods and packed in fancy, honest packages, can compete with those of any section. Overproduction need never be feared, for the Indiana markets are today importing three or four times as much fruit as is produced in the state. When Indiana production overtakes the Indiana demand the best markets of the world are to be found within 300 miles of Indianapolis. A new era of horticulture has arisen in Indiana. Apple growing has established itself as a most important industry and great interest is being evinced in the reclaiming of old, run-down orchards. The Hoosier apple grower is not compelled to wait ten to twelve years for a crop. Orchard renewal is the shortest cut to successful apple raising in Indiana, the land of the bearing orchard.

Cannery Handles 252 Carloads

According to the report of the officers of the Puyallup and Sumner Fruit-growers' Association for the year 1912, 5,947,094 pounds of fruit, or 252 carloads, were sent to the cannery; 135,862 crates, or 269 carloads, and 2,661 boxes of fresh fruit and 167,832 pounds of vegetables were sold. Over one-half of the fresh fruit shipped was raspberries and one-quarter blackberries, while a large percentage of the fruit canned was blackberries. This was one of the most successful seasons in the history of the organization, due mostly to the efforts of Mr. Paulhamus, who is their manager.

Editor Better Fruit:

One dollar herewith for paper. Statement of fact is not flattery, and it is true when I say your paper is the best edited and the best printed periodical of its kind I have ever seen. Yours truly, Ashley Cooper, Wyndell, British Columbia.



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We believe we have contributed in no small way to the producing of better fruit throughout the apple-growing sections of the United States in supplying at all times a safe, dependable and high-grade Arsenate of Lead, and this high standard will be at all times maintained. The experience gained in 75 years in manufacturing chemicals exclusively is behind the Grasselli brand, and is your protection.

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Officers of the Oregon Horticultural Society

The following officers were elected at the regular meeting of the Horticultural Society held in Portland, November 20-22, 1912: A. P. Bateham, president, Mosier; H. B. Miller, vice-president, Portland; Frank W. Powers, secretary-treasurer, Orenco; trustees, C. A. Park, Salem; J. O. Hart, Eugene; Albert Brownell, Portland.

Ware Resignation Accepted

Secretary C. G. Ware of the Yakima Commercial Club has sent in his resignation, to take effect January 1, which has been accepted. Assistant Secretary R. A. Jennings was appointed acting secretary until January 31, when the annual election will be held. Mr. Ware is a man of exceptional ability and a brilliant speaker, and has done much to further the publicity of the Yakima Valley.

Fruit Yield Grows

According to report for the year 1912, Medford, Oregon, will ship 775 cars, against 534 in 1910, which was the previous high year. There were 244 cars of pears, 436 of apples and 10 mixed. This is quite an increase in the output of this district, which will be increased as the young orchards come into bearing.

Zillah Has About 5,800 Acres of Trees

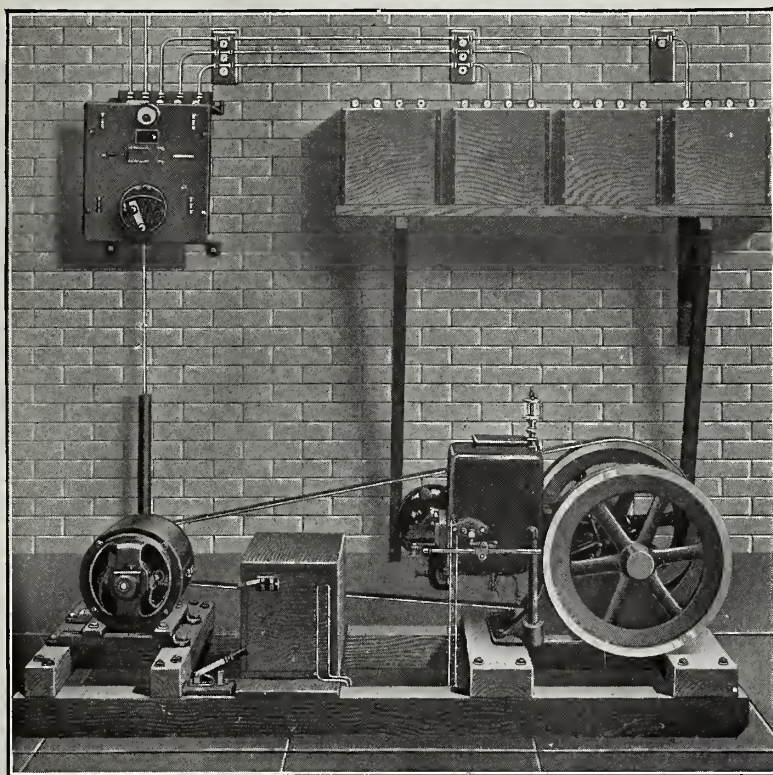
In the Zillah district, which is one of the many thriving ones in the Yakima Valley, there are 5,800 acres planted to fruit trees, of which 4,000 have not come into bearing. Of this acreage about 70 per cent is in apples, 10 in peaches, 10 in pears and the balance in prunes, cherries and other fruits. Zillah shipped about 500 carloads of fruit in 1911.

Below we give a comparative statement of carload shipments of fruit from California for the years 1911 and 1912:

	1911	1912
Cherries	216½	244¼
Apricots	233½	195½
Peaches	2,027	1,621¼
Plums	1,366	1,775½
Pears	232½	3,134½
Grapes	6,374½	6,357½
Sundry	16¼	15¼
	12,548¼	13,343¼

According to a statement of N. W. Mumford, manager of the Milton Fruit-growers' Association, they will have shipped out about seven hundred cars of fruit, which was between ten and fifteen carloads a day during the season. In addition about 100 cars of fruit sent out locally, would bring the output of the valley up to 800 cars.

Oregon has more than eight thousand acres of walnuts not yet in bearing, and of the 200 acres of bearing English walnuts Yamhill County has more than one-half.



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Save Money, Time and Labor
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Review of Recent Experiment Station Bulletins

By Professor C. I. Lewis, Chief Division of Horticulture, Oregon Agricultural College

THE Missouri State Fruit Experiment Station, Mountain Grove, Missouri, has issued Bulletin No. 22 on "Spraying Machinery," by Vr. W. Vraurst. This bulletin deals with the characteristics of good and poor outfits, including the spray pumps, valves, nozzles, etc. It gives a series of splendid plates on the different types of spraying outfits and comments on their good points. The bulletin is summarized in part as follows: "1. In the selection of spraying machinery the same principles are involved as in the selection of other kinds of farm machinery. After the kind suited to the needs of a particular orchard has

been determined upon, the chief point for consideration are weight, general construction, convenience of handling in the field, accessibility of various parts, quality of accessories, general durability and price. In large orchards where more than one machine is required, they should all be of the same make. This is applicable to either hand or power machines.

"2. There are two classes of hand pumps, barrel pumps and tank pumps. All barrel pumps should be equipped with an efficient agitator and should be reasonably easy to operate. The average barrel pump will discharge about fifty to seventy gallons of liquid per hour. Usually one line of discharge hose and one extension rod and one nozzle of the large-chambered type will constitute the equipment necessary to a barrel pump. Bordeaux nozzles can hardly be satisfactorily used with barrel pumps. There are a number of styles of tank pumps, any one of which will probably be satisfactory to persons wishing to use this sort of pump. These pumps have somewhat greater capacity than barrel pumps and will discharge from seventy-five to one hundred and twenty-five gallons of liquid per hour under moderate pressure. Small power outfits are much to be preferred to tank pumps.

"3. There are three classes of power machines, one of which should meet the requirements of practically any orchard owner. For the man with a small orchard, which will not require more than four or five thousand gallons of mixture in a single application, machines having a capacity of three and one-half to four and one-half gallons per minute will answer his purpose as well as a more expensive machine. For orchards that will require up to seven or ten thousand gallons of mixture for making a single application, machines with a capacity of six and one-half to seven and one-half gallons per minute will be needed. Machines of this capacity exactly meet the requirements for spraying young

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—all you need when
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—with an automatic
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Raises water 30 feet
for every foot of fall.
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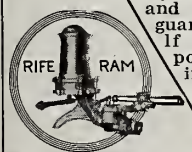
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trees, by L. H. Day,
Horticultural Expert.

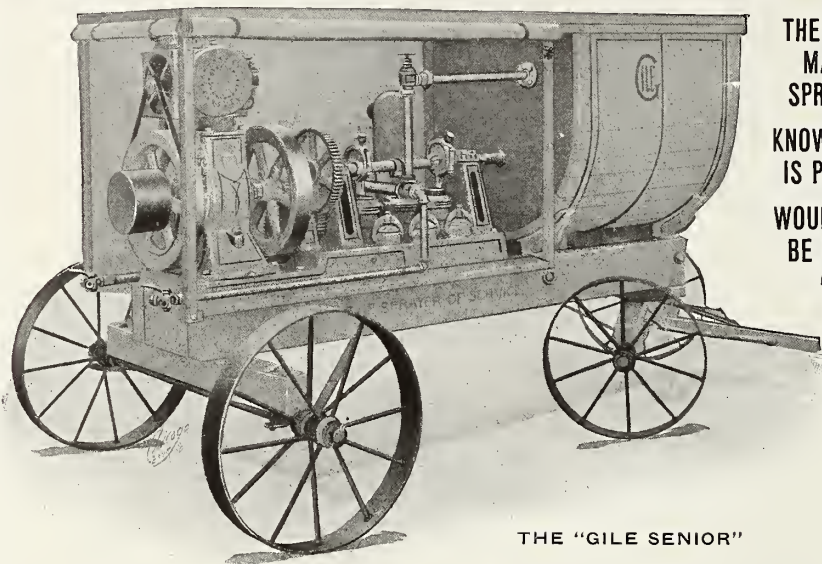
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"STAR" ORCHARD LADDER

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GILE POWER FRUIT SPRAYERS



THE WISE
MAN'S
SPRAYER
KNOWLEDGE
IS POWER
WOULD YOU
BE WISE
?

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The wise man carefully studies the question of sprayers and spraying and buys the best machine he can get—not the best for the price he pays—but the best machine on the market, and in the end this always proves the most economical and satisfactory purchase. It's mighty poor policy to invest in a machine which looks good until it begins to work—and then you discover that it is as cheaply constructed as the price. We have made a long and thorough study of spraying and sprayers, and as a result present to the fruit growing public a sprayer which more than fills all requirements, is as near absolute perfection as high grade material, superior design, and skilled labor can produce, and fully guaranteed in every way. We are ready and willing to place our sprayer in any orchard beside any other sprayer manufactured and leave the decision to the purchaser.

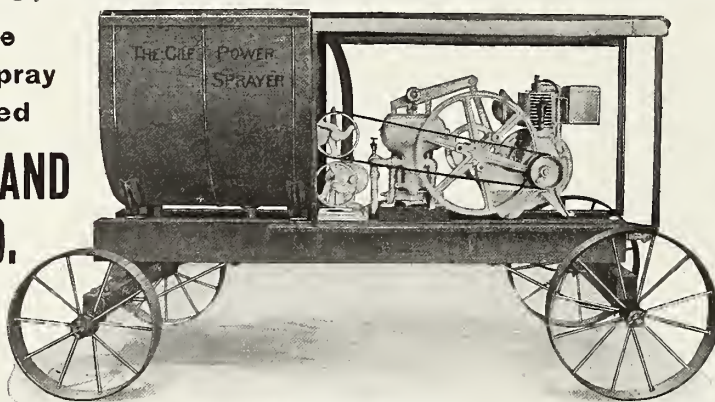
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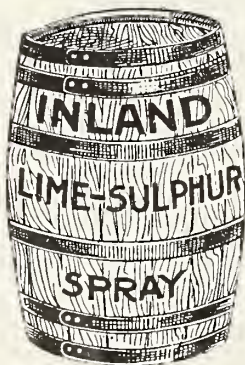
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peach orchards or young apple orchards in which the work is all done from the ground, and for commercial orchards of moderate size. For orchards requiring more than ten thousand gallons of liquid to make a single application, machines should have a capacity of at least ten gallons per minute. This is the size of machine that will generally meet the requirements in the larger orchards." The author continues treating of the different types of pumps, the importance of adequate drain cocks, relief valves, types of nozzles, extension rods, hose, tanks, agitators and machine troubles.

Professor P. J. Parrott, entomologist of the New York Agricultural Experiment Station, Geneva, New York, has brought out Bulletin No. 343, entitled "The Pear Thrips." As this pest is beginning to interest our Pacific Coast fruitgrowers considerably many of them will be interested in trying to secure this bulletin. It contains most excellent cuts. The bulletin goes into the subject very thoroughly indeed, and can be summarized as follows: "For several years pear blossoms in orchards in the Hudson River Valley have blighted, resulting in more or less extensive losses in fruit yield. Studies during the past spring have shown that the injury is caused by the pear thrips (*Euthrips pyri* Daniel), a new orchard pest, which has attracted considerable attention in recent years in California because of its destructiveness to various deciduous fruits.

"The adult thrips, which is largely responsible for the injuries to the trees, is a small, darkish-brown winged insect measuring about one-twentieth of an inch in length. It appears in destructive numbers when the buds are opening, attacking the tenderest of the flower parts. The eggs are mostly deposited beneath the epidermis of the blossom and fruit stems. Hatching takes place within a few days and the larvae seek preferably the calyx cups, under sides of calyces and the folds or under surfaces of the tender, expanding leaves. The larvae feed for about two weeks and drop to the ground, in which they form a protecting cell. In this cell the insect completes its transformations and emerges from the ground in the spring as an adult. The thrips is single brooded, and the most active and destructive stages are coincident with the period that includes the life events of the swelling and opening of the buds and dropping of blossoms and calyces.

"Injuries by the thrips in the Hudson Valley have apparently occurred over a period of five years. During the past three years fruitgrowers generally have noticed blighting of blossom clusters of pear trees, although the nature of the causal agent seems not to have been suspected. According to statements of fruitgrowers the most severe attack of the thrips occurred during 1910, when the pear crop in many orchards was much reduced. Besides losses in yields the trees were seriously checked by injuries to leaf buds and leaf clusters, and in some orchards the season was

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much advanced before the trees presented normal conditions of growth. The productiveness of pear orchards during 1911 was greater than the preceding year, but blighting of blossom clusters was general and orchards suffered losses in yields according to the severity of the attacks by the thrips. The actual range of distribution of the thrips in this state has not been determined. Its destructiveness to pear orchards has attracted the attention generally of growers about North Germantown, Germantown and Cheviot. Scattering numbers of this insect were found on pears growing south of this region, about Tivoli, to the north about Stuyvesant, and eastward to a line running between Chatham, Glencoe Mills and Clermont. It is reported also to occur across the Hudson River in orchards about Milton and Marlboro. The thrips is probably distributed over a larger territory in this valley than is indicated by these bounds. In Western New York specimens of this insect were found on apples growing about Geneva.

"During 1911 the thrips was very abundant on apricots, apples, sour and sweet cherries, pears, peaches and plums about Germantown. The injurious work of the insect was most noticeable on pears, principally on the varieties Kieffer and Seckel. While sour and sweet cherries and apples were much infested by adult thrips no material losses in the crops of these fruits were observed. The stems of sweet cherries are especially attractive to the adults for the deposition of the eggs, and they showed quite generally considerable scarification, but these injuries did not appear to cause any premature dropping of the fruit or to affect the quality or yields. The work of the thrips in pear orchards was given chief attention, but future efforts will include the study of the thrips on other kinds of fruit. The thrips is a difficult pest to combat because of the nature and suddenness of its attacks. Spraying is the most efficient method of control. The period for effective spraying is during the time when the buds are breaking and until they are entirely opened at the tips. The most promising spraying mixtures are the nicotine preparations in combination with kerosene emulsion or soap. Two or three applications on successive days during the past year largely prevented important injuries to pear trees. The physical features of the locations of the orchards, such as the direction and elevation of the slopes of the land, proximity to the Hudson River and character of the soil, have a marked influence on the development of the buds and the time of blossoming. The time for effective spraying will therefore vary with individual orchards."

The University of Missouri, Columbia, Missouri, has issued Bulletin No. 102, entitled "Combating Orchard and Garden Enemies," by W. H. Chandler. This is a typical spraying bulletin; deals first with the purpose of spraying, the cost, profits from spraying, condition affecting profits from spraying, and

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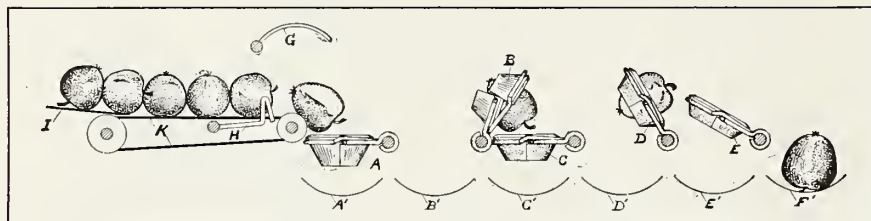
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then is taken up the spraying of individual fruits, such as the apple, pear, peach, etc., giving the diseases and insects that attack each and the remedies recommended. The latter part of the bulletin is devoted to giving formulas and directions for the carrying out of the same. Several pages are devoted to spraying apparatus and spraying methods. This bulletin will be of special interest to all Middle Western growers and will make a most excellent publication to add to the grower's library.

Mr. W. M. Scott, formerly of the United States Department of Agriculture, a man who is well known to fruit-growers all over the Northwest, has resigned his position with the government to take charge of the research and special service department of the Thomsen Chemical Company of Baltimore, Maryland. This company is to issue bulletins on the control of insects and diseases. Their first bulletin, No. 1, entitled "The Dormant Spraying of Fruit Trees," has just been received. A card dropped to this company will secure its bulletins as they are issued. The bulletin treats first of general considerations, the object of dormant spraying, gives recommendations for pruning to be done previous to spraying, emphasizes the necessity of thoroughness in spraying and the desirability of having the necessary good equipment. It then takes up special pests, such as San Jose scale; gives its life history, how it damages trees, how it spreads and how it can best be controlled. The oyster-shell, the scurfy and terrapin scales are treated. Not only are scales treated but such pests as the peach-leaf curl, the California peach blight, the pear psylla, the pear-leaf blister mite, the bud moth and the case bearers are all dealt with. The bulletin is very well illustrated.

We have just received Circular No. 5 from the office of the state entomologist, Fort Collins, Colorado, a bulletin entitled "The Fruit-Tree Leaf-Roller in Colorado," by C. P. Gillette and G. P. Weldon. This is becoming a very troublesome pest in Colorado and all fruit growers owning orchards in that vicinity and adjoining states should try to secure a copy of this excellent bulletin. The illustrations are very complete. The bulletin contains 43 pages and is summarized as follows: Conclusions from orchard experiments: (1) The leaf-roller eggs may be killed by a very thorough spraying with a soluble oil while the trees are dormant. This spray should probably be applied prior to but as near hatching time of eggs as possible. (2) Very careful and heavy spraying with arsenicals early in the season will result in almost complete control. The first application should be made shortly after the eggs begin to hatch, which will be when the first green foliage is showing on the trees and the second as soon as the blossom buds have separated in the clusters. A blossom spray is, in all probability, not necessary and is dangerous in that it poisons the bees. (3)

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Black Leaf 40, carefully and thoroughly applied about the same dates as the first two sprayings with arsenicals, will give good results. (4) a mixed spray of Black Leaf 40 and lead arsenate is little more satisfactory than either one of the insecticides used alone. Furthermore, the cost of such a spray would be too great for practical purposes. (5) Three pounds of lead arsenate to fifty gallons of water is sufficient for successful control, and there is no advantage to be derived from mixing paris green with it, as many have done. (6) Not less than ten gallons of spray, on an average, should be applied to trees from twelve to twenty years of age. Very large trees may require even more. (7) Failure to control this pest with arsenicals has been due in most cases either to a failure to spray early enough and at the correct time or to put enough of the liquid on the trees.

Recommendations—(1) All orchards where this leaf-roller has been at work, and where it is indicated that spraying must be done for its control, should be heavily pruned, and the wood which is removed and destroyed, before April 1, if possible. (2) Make a spring application of a good soluble oil shortly before the hatching of the eggs. (3) Should the soluble oil fail, for any reason, to kill the eggs, two early sprayings of an arsenical, or Black Leaf 40, should be applied as recommended above. (4) More failures to control any insect pest with sprays that are known to be effective are due to poor spraying than anything else. Instead of applying from three to five gallons of spray to ordinary sized trees apply from eight to twelve, and instead of using an excessively strong spray use either six pounds of lead arsenate or three pounds of zinc arsenite (the California brand of this product is known as Ortho 40), depending upon the quantity of liquid rather than excessive strength to give results. The spray may be ever so strong—if it only coats half of the leaf surface little good can be expected from it. A spray that is applied strong enough, and made to cover every portion of the leaves and blossoms, is the one that is sure to accomplish the desired purpose."

The Delaware Experiment Station at Newark, Delaware, as issued Bulletin No. 97, entitled "Plant Protection," by C. A. McCue. This bulletin is devoted almost entirely to spraying. It takes up the biological troubles of the plant grower, tells him what troubles he can spray for and what he cannot, then gives a classification of sprays, treats of insecticides and recommends insecticides for chewing insects and insecticides for sucking insects. It next treats of fungicides and gives combined insecticides and fungicides. These recommendations are followed by spraying directions for the more important crops—first the orchard is treated—apple orchard, pear orchard, peach orchard, etc. It then treats of pests attacking the crops, such as the apple, asparagus, blackberry, cabbage, gooseberry, cherry, etc. In the latter part of



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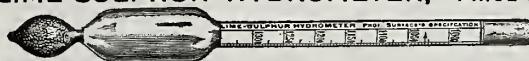
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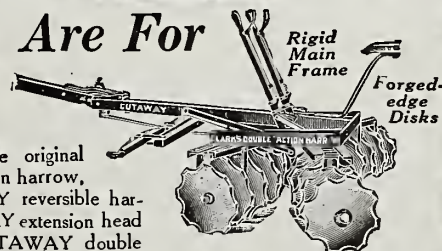
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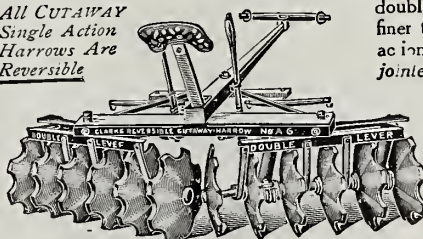
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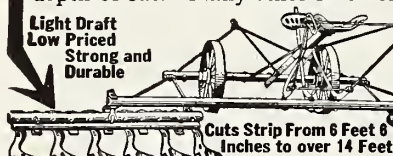
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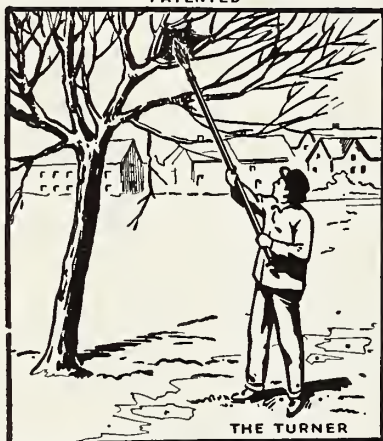
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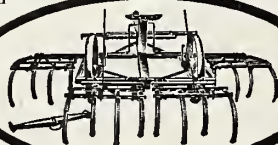
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the bulletin some attention is given to spraying machinery. Illustrations are given of machinery, nozzles, etc. The bulletin concludes with an article on cultural control of plant problems and the treatment of rodents.

The student of the codling moth should write to the United States Department of Agriculture, Bureau of Entomology and secure Bulletin No. 115, part 1, entitled "Life-History Studies on the Codling Moth in Michigan," by A. G. Hammer. This bulletin is very complete, has gone into the work very carefully and is very nicely illustrated. All Michigan fruitgrowers and fruitgrowers of the Middle West in general should be greatly interested in this bulletin, and while it does not apply so much to our conditions on the Pacific Coast, nevertheless those who are interested in getting all the information they can on this insect should secure this bulletin for their library.

The New York Agricultural Experiment Station, Geneva, New York, has recently issued Technical Bulletin No. 23, entitled "Crown-Rot of Fruit Trees: Field Studies," by G. Grossenbacher. A great deal of trouble has been experienced in New York state from the crown-rot of fruit trees. Fruit growers who are interested in such troubles will like to secure this bulletin. It is very complete and splendidly illustrated.

The fruitgrowers of the Middle West have been having a good deal of trouble with what is known as the apple-blister canker. The Ohio Experiment Station, Wooster, Ohio, has recently issued Circular Bulletin No. 125, by W. O. Sloyer. This bulletin can be secured by writing to the station at Wooster, Ohio. It throws considerable light on the neglected orchard problem and all who are interested in this problem will do well to secure this bulletin. It is a short bulletin, containing a number of illustrations, which shows clearly the nature of the trouble. A brief summary is given as follows: "(1) In the southern and eastern portions of Ohio the condition known as a 'neglected apple orchard' is for the greater part caused by the blister canker fungus, *Nummularia discreta*. (2) The fungus, being a wound parasite, is difficult to control when once it has taken hold of a tree, and, except in cases of slight attack, the tree ultimately will succumb to this disease. (3) To prevent infection from the blister-canker fungus it is necessary to prevent the drying of the tissues, which is done by covering the wound with a suitable dressing. (4) Prevention of infection and orchard sanitation, as by removal and destruction of diseased parts, appears to be the only method of controlling the blister canker in Ohio."

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How to Cut Back the Whip

By H. D. Clark, Wenatchee, Washington

FOR the benefit of those who are planting trees in locations exposed to a prevailing wind the following suggestions, if carried out, will prove of inconceivable value. To those who have been through the ordeal of staking young trees or practiced heavy cutting into the wind to establish a shape, the wisdom of this method will be readily apparent. I refer to the cutting back of the whip the year it is set in the orchard. Most of us who have had experience in planting trees have discovered that there was something wrong in the practice of cutting whips back to a bud into the wind-over position and often past, the end of the first year. The shoot produced by the top bud will always be the strongest limb and is often twice or three times the size of any other shoot that the whip has produced. Then consider the fact that this same limb will retain its supremacy over all others from three to five years, regardless of any subsequent pruning. Next concede the fact that the windward leaders all blow over toward or past the center of the tree, while those on the opposite side are protected to a large degree and remain in a more upright shape. The usual condition after the first or second year's growth shows the original windward (top) limb either a center stem or entirely out of the position which it was intended to fill. Now is it any wonder that all the leaders blow over and staking must be resorted to? Even if the windward leader has made a center stem nor removed from position the top has gone over, and as it is still the heaviest limb nothing but a pull from that side of the tree will bring it back. How much better would it be if that heaviest limb were on the protected side of the tree, where one or two winters' cutting back toward the wind would insure an upright limb and the use of a couple of braces would hold the windward leaders in place without further work to balance the tree? That practice has been worked out and proven successful.

Never cut back a whip to a windward bud. Cut to a bud exactly opposite the direction of the prevailing wind. Cut close to the bud. This produces a shoot which tends to make a direct continuation of the whip, but will be blown over for one or two years until the windward leaders have gotten a start. This top limb should be cut back hard into the new wood these two years, making these cuts one-half to three-quarters of an inch above a windward bud to force them back when blown too horizontally.

After the second year there is practically no danger of this leader being blown over. When bracing back other leaders from this heaviest leader the brace should be from a point as low as possible from the point on the others.

Editor Better Fruit:

Your magazine is my constant inspiration and I endeavor to carry into practice all the ideas I gain from reading it. Yours sincerely, V. R. French, Sebastapol, California.



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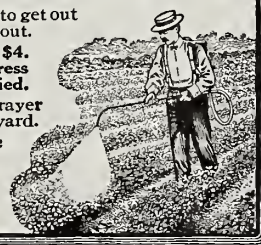
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GENERAL CHEMICAL CO. OF CALIFORNIA, SAN FRANCISCO



Economy in Spraying

By Professor C. I. Lewis, Corvallis, Oregon

ONE of the main problems that our orchardists have to face is reduction in the cost of production. We must endeavor to save money in all our orchard operations and aim to produce fruit cheaper than we have in the past. As long as we can produce fruit that will sell for fancy prices we can afford to spend lots of money in producing it, but unless fancy prices are realized we need to be very careful in our expenditures. In considering the cost of spraying, it seems to me that the waste could come under the following heads: Using the wrong mixture; spraying when it is not necessary; mixing sprays that do not combine well; abandoning fairly satisfactory mixtures

for new, untried preparations; carelessness in applying and using the wrong apparatus.

1. Using the Wrong Mixture—Many growers do not take the trouble to find out what they are really spraying for. They seem to have little or no knowledge of the nature of the trouble they are trying to cure or prevent. Each grower should understand thoroughly whether he is trying to destroy a pest that is already present in his orchard or whether he is trying to prevent the spread of a disease to which his trees are exposed. Last spring I knew of a peach orchardist who was spraying his orchard. He was asked, "What are you spraying your orchard for?" He answered, "Hanged if I know." The next question was, "What are you using?" "Oh, I am not sure of that. I think it is lime sulphur." It happened that the man was spraying for peach-leaf curl, and investigation later showed that he was using a good mixture. However, there are thousands of cases like this man's, when the spraying is done at the wrong time with the wrong mixture and the man does not know what he is trying to control.

2. Spraying When Not Necessary. Many a man sprays against every pest he has ever heard of. He has read the bulletins eagerly; he has talked with

all his neighbors; he has been told that it is impossible to grow good fruit without careful spraying, and as a result he becomes a great enthusiast. He gives his orchard seven or eight "soakings" during the season, and in so doing probably throws away much of his money. He sprays for San Jose scale when there is not a scale in his orchard, and perhaps has not been for several years. He sprays the entire orchard for aphids when perhaps only a dozen trees have been attacked. He sprays for anthracnose late in the spring when he should have done it in the fall. This man is not an unusual

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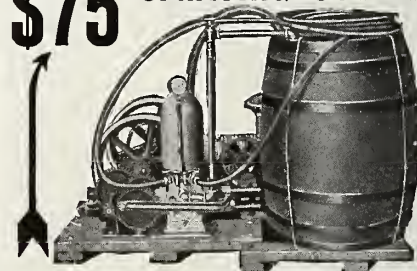
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man. He is a typical example of a large number of fruitgrowers. I know of one orchard of twenty-two acres that is three years old and has not yet been sprayed. At the last inspection the orchard did not show any need of spraying. I know of one hundred and fifty acres of apples and pears four years old that up to date have not been sprayed as a unit. It is true that many of the trees have been sprayed. When the cherry and pear slugs appeared the trees upon which they were appearing were sprayed, but trees which were not attacked by the slug were not sprayed. The same is true with regard to the green aphid. Those trees that were being attacked by this pest were sprayed promptly. By a good system of inspection one can easily detect the presence of many pests and spray in such a way as to save a great deal of money. A question arises as to what percentage of clean fruit it will pay us to strive to attain. We say that up to ninety per cent it is relatively easy to get clean fruit. When we go above this, however, it often takes additional sprays and much additional cost. From an economic point of view are we justified in this extra cost? Our entomologists and pathologists will answer that unless we strive to attain one hundred per cent clean fruit we are going to allow enough germs, spores and eggs to carry over to make it almost impossible to keep the orchard clean the succeeding years; and there is doubtless a great deal of truth in this contention, especially in relation to certain pests. There are, however, many pests in the orchard to which this rule does not apply. We have been emphasizing the thousands of dollars that are saved by good spraying, and the thousands of dollars that are being wasted by not spraying, and saying nothing about the money that is wasted by needless spraying. We must not, however, lose sight of the fact that an enormous amount of money is wasted by not spraying when it is needed. We must not carry our economy to such an extreme as to abandon the fighting of certain diseases and insect pests that need prompt control.

3. Mixing Sprays That Do Not Combine Well—Many persons are likely to believe that because certain mixtures are good separately they are even better when combined. The Oregon Experiment Station has been conducting a number of orchard surveys, and

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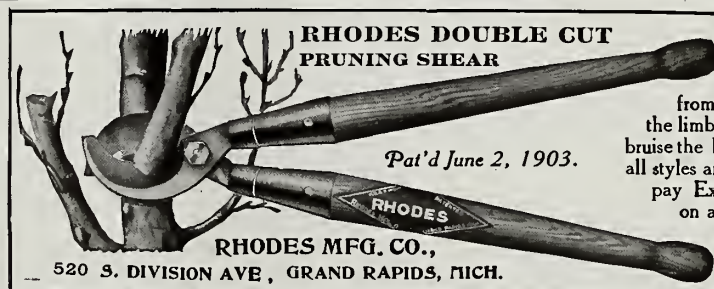
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we find quite a large class of men who do a great deal of mixing of their own. Investigation has shown that most of this is foolish; that it is wasteful; that the mixtures they manufacture are often absolutely worthless, and that certain elements which are splendid when separate are practically worthless when combined. The experiment stations are constantly writing bulletins recommending certain sprays for certain diseases and insect pests. Before deciding not to follow their advice, it would be a very good plan to write a letter to the authorities and ask them what their opinion would be concerning the use of other mixtures than they have recommended. By the use of a two-cent stamp you may save yourself two hundred dollars. I have known entire crops to be sacrificed because a man has decided that the addition of a certain amount of lye would be beneficial to his spray.

4. Abandoning Fairly Satisfactory Mixtures for New, Untried Preparations—Every year thousands of dollars are literally thrown away because the growers substitute some new, untried mixture for the one they have been formerly using, despite the fact that they may have been getting fairly satisfactory results from the old mixture. Occasionally they gain by such a change. At other times they appear to gain the first season, only to find out in subsequent seasons that they have made a bad mistake. A large percentage of growers on the Pacific Coast this year made some costly experiments in substituting new poisons in fighting codling moth. The testimony at the National Apple Show at Spokane showed that this substitution had been a very expensive one financially. We should not be so conservative that we are not willing to try new mixtures, but they should be tried on a very small scale and we should run them through at least two seasons before drawing our conclusions. As a general rule it is much safer and better to allow the experiment stations to carry out experiments to test new sprays before we adopt them on a large scale ourselves. Growers are sometimes too easily influenced by agents who have something new to sell.

5. Carelessness in Applying—It is very hard, indeed, to secure men who are conscientious enough to do good spraying. Inspection of an orchard after it has been sprayed will often show that many fruits have remained unsprayed, and even that whole branches have been missed. In fact at times the work is so slovenly and careless as to be practically ineffective. This simply means that the mixture, the time of the men and the money expended have been wasted. Again, a great deal of spray is wasted by not using the right nozzles. There are a great many nozzles on the market and each type has its special use. The grower should acquaint himself with the purpose of these nozzles before deciding that one nozzle is superior to all others on all occasions. Again, we waste a great deal of spray material.

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We say that it is better to do a good job and waste some spray than to do poor spraying and allow the fruit to become diseased or attacked by insect pests. This feeling, however, often leads us to extremes and thousands of gallons of spray are wasted.

6. Using the Wrong Apparatus—One of the most trying things for the grower to determine is the right kind of apparatus to use. It is true that while the orchard is still young a barrel pump can often be made to do most excellent service and saves the outlay of four or five hundred dollars that is necessary if a real good outfit is purchased. On the other hand, I have seen barrel spray pumps used when they were frightfully extravagant. Their capacity was so small and the spraying job so big that they were wasting the time of two or three men. When the orchard begins to come into fruiting, especially with commercial acreages, it is absolutely essential that we have better sprayers. The small growers should combine and buy an outfit co-operatively. More attention should be paid to economy in running the outfits. If you have six horses, for example, is it better to run three spray rigs separately or is it better to run two spray pumps and use the third team as a supply team to keep the other two outfits running continuously, thus saving any loss of time in going to and from the spray sheds?

There is undoubtedly a tendency in the Pacific Northwest at this time to encourage our spray machine manufacturers to make very powerful outfits. We are demanding a pressure of two hundred and fifty pounds. The manufacturers are straining every nerve to meet this demand. They are building powerful, heavy, expensive outfits. The initial investment is heavy; the depreciation is heavy. We are trying to make them build fire engines and not spray pumps. I am satisfied that in a great many cases we are making a mistake in demanding so high pressure and having to use such powerful, heavy and expensive outfits. There are many diseases and insects that can be controlled nicely with less pressure and less expensive outfits, provided appropriate nozzles are used.

In speaking of power sprayers, you may say that we can throw them into two classes: First, those not having over one and one-half horsepower, and, second, those having over one and one-half horsepower. The former less powerful outfits are specially adapted for sidehill orchards, for orchards having heavy soils and for small acreages. In selecting such an outfit, these are some of the points we should bear in mind: That the lighter the outfit is (excluding the truck) the better; that the greater the capacity, up to one hundred and fifty gallons, the more desirable is the outfit. There is a ratio of weight to capacity. The smaller the quotient obtained by dividing the weight (excluding truck) in pounds by capacity in gallons the better. The less exposed the parts, such as cogs, the better.

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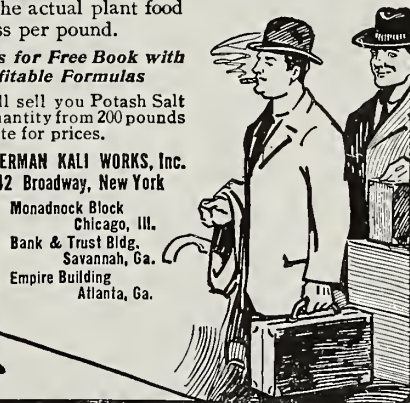
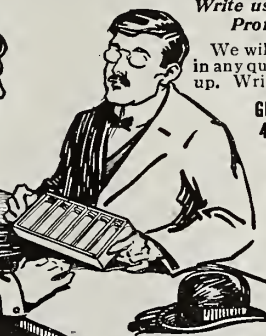
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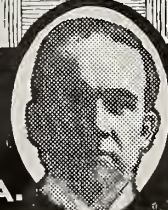
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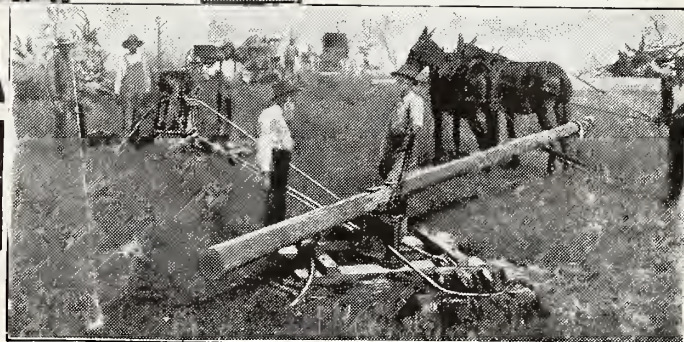
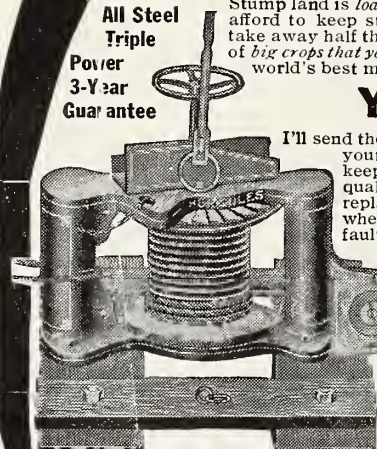
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The more accessible all working parts, screws, valves, etc., and the more easy they are to repair and adjust the better. Then we should look carefully into the pressure regulator. The more completely it stops the amount of pressure when the hose is cut off the better. The pressure regulator should also be easily adjusted from one range to another. And the more completely it takes the load off the engine when full pressure is reached the better. In studying outfits, look for simplicity of construction as well as quality of construction. Outfits of this class should be able to maintain a pressure of one hundred and seventy-five pounds and to deliver two and one-half gallons per minute. We should study them carefully to see how evenly they can maintain the desired pressure. Some pumps can do it for a short time, but they fluctuate too much. Our concluding observation will relate to the cost of operation.

Now, concerning the second type, that having an engine of more than one and one-half horsepower. The points to consider are about the same as those I have already mentioned, except that the capacity should be at least two hundred gallons and the machinery should discharge four gallons a minute at an even pressure of two hundred pounds. If it cannot do this it does not measure up to the desired requirements. There is practically no advantage in having it give more pressure than this or discharge more liquid than four gallons per minute. It is doubtful if a machine has been built which discharges more than four gallons per minute, and which can be handled with good economy. There are a number of outfits advertised as being capable of throwing seven to ten gallons a minute at two hundred and fifty pounds pressure with coarse spray nozzles, but such a combination, in most cases, is not economical.

In conclusion I wish to state that there are quite a number of firms on the Pacific Coast handling both types of outfits. I have had the opportunity of examining these types carefully and I find that on the whole they are very good. Just what machinery you will choose will depend upon how near, in your estimation, they measure up to the requirements stated and also how they appeal to you in a general way. You may find that one firm makes a very good powerful machine but that their less powerful machine does not appeal to you as well as that of another firm. Take time to examine the machines carefully. I feel that if the growers will study more the points I have brought up in this article we can this coming season reduce much of the waste in spraying.

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By W. H. Volck, Entomologist,
Watsonville, California

THE apple and pear scab is caused by closely related parasitic fungi. In fact ordinary methods of observation cannot distinguish any difference in the appearance of these diseases. Both cause black or dark brown suttly spots on the foliage and fruit. These spots consist of great numbers of summer spores, produced by the fungus which is growing under the fruit rind or leaf epidermis. The spots usually appear on the leaves first, but may also develop on the very young fruit, or even the blossoms. When the early scab attacks the blossoms these quickly blacken and fall; the young foliage may also be killed. When this condition is general the tree has a badly blighted appearance and the crop is destroyed. If the young fruit escapes the early attack of the scab it may later become infected by the spores produced on the foliage. Such later infections seldom cause the dropping of the fruit, but the scab spots become sunken and cracked, while the general growth is retarded, resulting in a runted and worthless product.

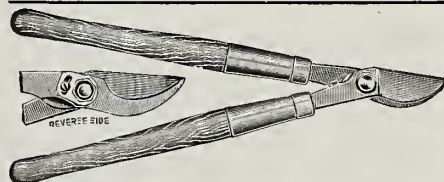
The scab fungus winters over on the trees and also on the fallen leaves. During this period the fungus goes through a special stage in its development and looks quite unlike the summer disease. In fact the winter form was long thought to be another species. When the spring opens some of the scab spores which are blown about by the wind find lodgement on the expanding foliage. Should a rain come at this time and keep these spores wet for ten to twenty-four hours they will germinate and the germ tubes will penetrate into the leaves and young fruit. Once within the tissue the growth of the fungus continues even should the weather become dry. This growth goes on for several days and the fungus plant spreads through an area of tissue varying in size from that of a ten-cent piece to half a dollar or more. At this point the growth suddenly ceases and the production of spores commences. Short stocks are forced through the epidermis and on these develop numerous dark-colored spores, which collectively form the suttly spot commonly observed. These summer spores are blown about by the wind and find lodgement on the foliage and fruit. If favorable weather conditions follow a second infection takes place, and this process continues as long as conditions are favorable.

As has been pointed out, scab infection depends on the presence of enough moisture to germinate the spores. The amount of early infection depends on the rains which may fall in the latter part of March and early in April, or while the trees are coming into leaf. If no rain falls during this period the infection will be very slight with apples, but pears may develop the disease from dew and fog moisture. Rains in May bring about a second and third infection. With a dry spring there is

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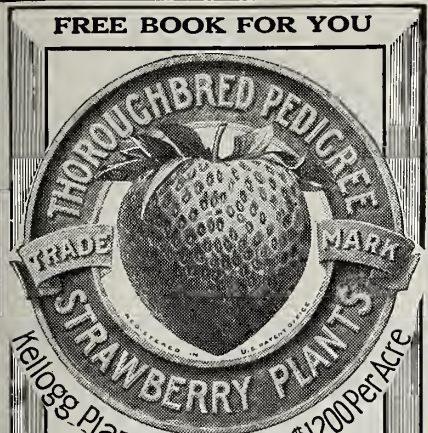
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very little danger of apple scab, but the corresponding disease of the pear may be present. Pear scab requires less moisture to develop than the apple disease, and that supplied by fogs and dews is often sufficient. With perfectly dry weather, such as may occur in the interior valleys, this disease is also absent. On the other hand, there are localities on the sheltered hillsides in the Coast districts where fog and dew moisture is sufficient to produce apple scab.

The effective treatments for scab consist in the application of some material that will prevent spore germination. Necessarily, the application must be made before infection takes place, and is of a preventive rather than a curative nature. Copper and sulphur are poisonous to fungi, and if either of these substances are present on the foliage in sufficient quantities the same water which would produce spore germination also dissolves enough of the fungicide to kill the spores. Early scab attacks can only be prevented by spraying while the trees are in bloom or just before the blossoms open. For the full-bloom application the bordeaux mixture is best, but lime-sulphur solution may be used on the bursting buds with equally good effect and at the same time controls the San Jose scale. If this lime-sulphur spraying has been applied, or even one earlier in the winter, the apple grower is reasonably safe in waiting until the first codling moth application for the bordeaux treatment. This application is made when the majority of the blossoms have fallen and before the calyx cups have closed, or from that time until the middle of May. For all such sprayings the bordeaux arsenate of lead mixture may be used. This is a combined insecticide and fungicide and controls scab, codling moth, canker worms and tent caterpillars. All bordeaux sprayings for both apples and pears had best contain arsenate of lead in order to insure this combined control. The bordeaux mixture restrains arsenical injury to a considerable extent, and even paris green may be used with the earliest applications without doing any serious injury. Pyro or acid arsenate of lead is also reasonably safe in the early bordeaux sprayings and gives quicker results with canker worms than the Ortho compound. It should be clearly understood, however, that when used alone only the Ortho arsenate is free from the danger of foliage injury.

Bordeaux arsenate of lead: Bluestone, 12 pounds; quick lime, 16 pounds; water, 200 gallons. After making the bordeaux add 12 pounds of arsenate of lead. Dissolve bluestone by suspending in a sack just under the surface of the water, in a wooden barrel. Slake the lime in another barrel and add water enough to make a thin milk of lime, then strain into the spray tank to remove coarse impurities. Now fill the tank about two-thirds with water, start the agitator and then add the bluestone solution. Continue agitating until thoroughly mixed, then add the

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arsenate of lead which has been worked up with water in the usual way. Now fill up to 200 gallons with water. Smaller quantities are prepared by usual proportional weights of the materials. One barrel (50 gallons) takes three pounds of bluestone, four pounds of lime and three pounds arsenate of lead. All sprays require thorough application to be effective. The most common mistake is the failure to apply enough material. Spray the tree from all directions with special attention to the top. Spray down into the calyx cups and up against the under surface of the leaves. Do not leave the tree until it is drenched and dripping in every part.

The apple grower can often take his chances with the scab if the spring season promises to be dry, but pears in the Coast districts will always suffer from such neglect. Three bordeaux arsenate of lead applications are necessary to assure a clean crop. The first should be applied when the trees are coming into bloom and up until full bloom, the second when the blossoms have fallen and the third about three weeks later. In case of considerable rain in the late spring still another spraying may be necessary. Also a lime-sulphur spraying when the buds are swelling greatly aids in control.

Russeting of fruit sometimes occurs as a result of bordeaux applications. This russeting is more serious when the weather conditions are most favorable to scab, that is, when spring rains are abundant. Bordeaux russeting under California conditions is never very pronounced and is less objectionable than the scab, even in the most aggravated cases. Bellflower apples are more subject to russeting and less injured by the scab than Newtowns, White Winter Pearmains or most other varieties. For this reason Bellflowers should not be sprayed with bordeaux mixture unless the danger of scab is very great. With this variety it is best to depend on the lime-sulphur solution applied while the buds are swelling.

Scion Wood

GOING to do any grafting next spring—speaking horticulturally, of course? Well, don't make the mistake of waiting until spring to cut your scions. If we have a mild winter you have just as good success if you cut them in the spring, but if the young wood of last summer's growth is injured by the cold this winter your grafting next spring will not be successful. Grafting must be done early in the spring when it is difficult to tell to what extent the winter has been injurious to the young wood, and very often, as was the case last spring, a great deal of time and work are wasted setting scion wood that is in poor condition and not likely to grow.

The usually low percentage of successful grafts last spring was probably due to the extremely severe cold in October and November, before the wood had sufficiently matured. In this



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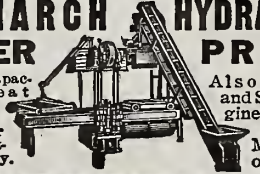


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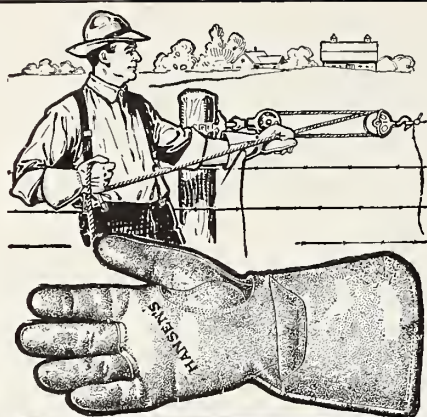
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unusual case, the scion wood cut in the fall was in little, if any, better condition than that cut the next spring. Ordinarily, however, the injury is done later in the winter and can be avoided by cutting the scions late in the fall.

Good scion wood is that from the tips of the limbs of trees which have made a growth of from twelve to eighteen inches during the past season. Avoid blighted or woolly aphids infested branches. Watersprouts are not supposed to make good scions, as such succulent growth is not likely to be as hardy as normal growth. Wood from young trees which have not borne fruit should not be used unless the variety is known positively, for sometimes trees turn out to be some other variety than that which was ordered.

If any individual tree produces fruit of extra good color or quality for that variety it is commonly supposed that scions from that tree will do the same. There is considerable doubt, however, as to whether these characters are inherent or are simply acquired through favorable environment and will disappear with a change of environment. At any rate there is no harm in taking scions from trees which produce the best fruit. After the twigs are cut off they should be buried either on the north side of some building where drainage is good or in sand in the cellar, and not allowed to become wet or dry, but kept moist and cool through the winter.

If scions of more than one variety are to be cut be very careful to keep them in separate bundles and tied with good strong cord that will not come off easily after being buried through the winter. And, above all, label carefully with the name of the variety and, if so desired, the date when cut, the source and any additional record you desire to keep.—Contributed.

Combating Scale Insects

Information for fruitgrowers and farmers troubled with scale insects on their crops has been prepared by A. L. Lovett, Assistant Entomologist at the Oregon Agricultural College.

"For scale insect of such type as the San Jose use the lime-sulphur spray of winter strength during the dormancy season," says Mr. Lovett. "For the soft scales such as occur on the blackberry, prune and plum use the kerosene emulsion or whale-oil soap. Kerosene emulsion is prepared as follows: Heat a gallon of water (soft if possible) to boiling; shave half a pound of soap into it (whale-oil soap is preferable) and stir till the soap is dissolved. Remove it from the fire and add two gallons of kerosene. Agitate the mixture vigorously until it is creamed, which is best done with a hand pump, forcing the solution through the hose and back into the container.

"For use in the dormancy season this should be diluted with seven gallons of water, and for summer spraying, at the time the young emerge, with eleven gallons of water. A pound of whale-oil soap to four gallons of

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On fruit trees, as the apple and peach, the spray used in early spring, when the buds are starting, should be a combination of winter strength lime-sulphur and Black Leaf "40," using one part of the black leaf to 800 of solution. If applied ordinarily the aphides do not become especially bad. Where the trouble is severe the tobacco solution should be used.—Contributed.

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Editor Better Fruit:

During the last summer I had several conversations with prune growers and several letters from the Experiment Station at Corvallis regarding the wide and increasing prevalence of curling leaf on prune trees that season. There seemed to be some worry about it, but no one who communicated with me was able to account for it satisfactorily. Since the publication of Professor Cordley's article on pests in "Better Fruit" I have been making observations and I am satisfied that part of the symptoms that were being discussed during the summer were due to presence of prune borers. In view of the assurance of the Experiment Station that they could not account for the roll, I assume that there may be some other cause producing similar symptoms to which they referred, but I feel sure that a number of the people who felt concern at the appearance of their orchards should take steps to eradicate borers. I find some others are discovering this fact, but it occurs to me that if attention were called to it in "Better Fruit" and wider publicity given to the suggestion of the connection between roll and borers it might be of economic importance later. I believe that borers prevail more widely than is suspected, and very few seem to be effectively fighting them, but they have already done much damage within my observation. Very truly, W. W. Silver, Newberg, Oregon.



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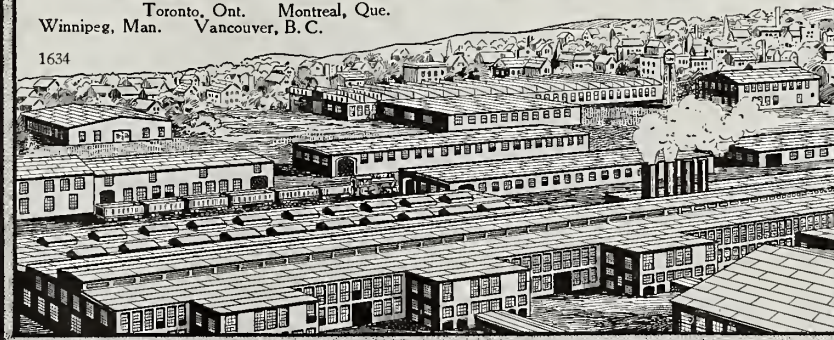
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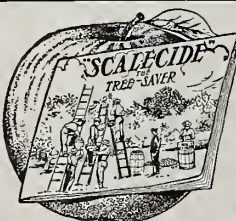
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This material is not just as good, but far superior to lime-sulphur solution, as past results have shown, and is much quicker in controlling San Jose scale and fungous diseases, and also controls *Aphis* at the same time. It is put up in the following size drums: 100, 50, 25, 10, 5 and 1-pound.

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if desired*



Niagara Triplex High Pressure Sprayer

We believe without any exaggeration that this machine is without any question the most modern power sprayer there is manufactured in the United States. In the manufacture of this outfit we spare no expense in either material or workmanship. Every part of the machine, from the end of the rod to the truck, is made of the very finest material.

SOME ADVANTAGES THIS MACHINE HAS OVER OTHERS

Porcelain-lined cylinders that are not affected by the chemical action of corrosive spraying materials. Guaranteed against wear and breakage for ten years. Three cylinders, therefore insuring a constant working pressure of from 250 to 300 pounds, which is necessary to do effective spraying.

Three and one-half horsepower, slow speed, hopper water cooled, non-vibrating engine. Guaranteed not to break by freezing. Weight only 325 pounds.

Engine can be disconnected from the pump by simply sliding a gear with the hand, making it very accessible for any other kind of work, such as sawing wood, cutting feed, etc.

Rotary agitator direct connected by universal joint to the pump. Tank made of Highland cypress, tongue and grooved, and trimmed entirely with steel. Tower made of steel tubing, three legs, and can be folded instantly. Wagon frame made of steel. Engine and pump base made of steel and riveted to main frame. Wagon wheels made of wood. The front construction, as you can see, is so made to permit the wagon to turn square around, the wheels turning under the tank. The oscillating fifth wheel permits the wagon to run over the very roughest of ground without endangering the operator in the tower.

Place Your Order Before It Is Too Late

NIAGARA SPRAYER COMPANY

MIDDLEPORT, NEW YORK, U. S. A

Fill in this form and mail to Niagara Sprayer Company
Middleport, New York

Name

P. O. State

Acres of fruit What kind

Interested in Power Sprayer? - - - Yes or No

Interested in Hand Pump? - - - Yes or No

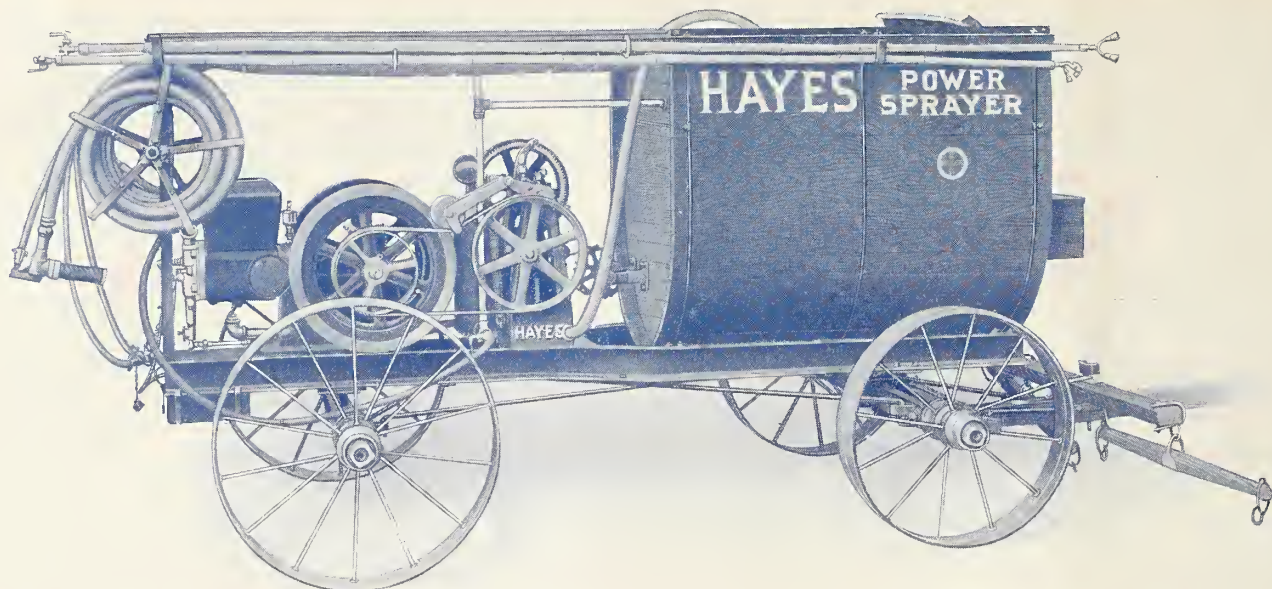
Interested in Soluble Sul. Compound? - - - Yes or No

Interested in Lime-Sulphur Solution? - - - Yes or No

Interested in Arsenate of Lead? - - - Yes or No

Interested in SULPHUR? - - - Yes or No

Interested in Spray Fittings and Accessories? Yes or No



Make Your Apples *Worth More*

Good trees, soil and weather count for little if your trees are deluged with poisonous solution from inefficient, *low pressure spraying*. Spraying is *the* important factor. It is the one thing over which you have complete control—the one thing you can regulate so as to insure a *bigger yield of better fruit*.

The HAYES is *guaranteed* to maintain 300 pounds pressure. It thoroughly covers every particle of foliage with a fine mist, insures results and saves solution.

The HAYES is of thorough mechanical up-to-the-minute construction from tank to nozzle. Special Design Engine, Large Capacity *High Pressure Triplex Pump*, Improved Agitator, 200-gallon Cypress Tank, Hydraulic Tank Filler, Hose Reels, Bamboo Rod Holders, complete length Level Platform, fitted with Extra High Pressure Hose and HAYES Spray Nozzles, improved in every detail, the HAYES is sure, reliable and easy in operation and *guaranteed* in efficiency.

Strong steel frame, cross braced and hot riveted. All steel *non-tip-over* cross reach Orchard Truck that turns in 14 feet. *Cannot strike trees in turning*.

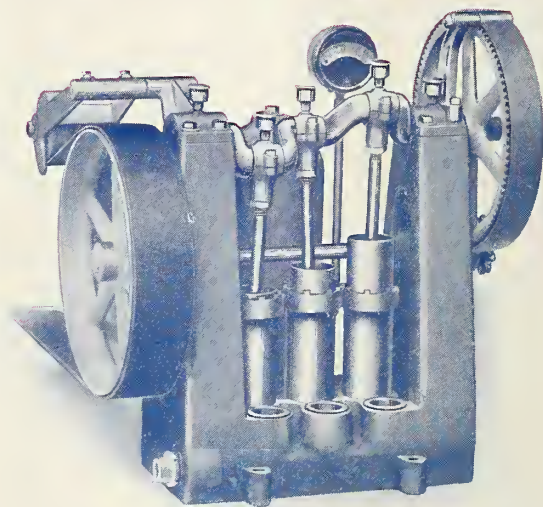
The pump, engine and tank are bolted directly to steel beams. *All operation is in a direct line* in the center of the frame. All weight is low down, the truck is short coupled and compact, insuring stability, lightness of draft, less jar and pounding, fewer adjustments, breakages and repairs.

We manufacture three sizes each of Triplex and Duplex Power Sprayers. Nozzles, hose, bamboo rods, fittings, accessories, etc. Complete stocks carried at Western, Central and Eastern distributing points.

WRITE? Send postal for catalog. While investigating sprayers you can't afford to overlook this modern and scientific line. Write today, then you won't forget.

Hayes Pump and Planter Co.

GALVA, ILLINOIS



Hayes Triplex Spray Pump

Back geared 6 to 1. Spring tension Idler. Ground drop forged Crank Shaft. Machine cut Gear and high carbon steel Pinion. Heavy seamless drawn brass Cylinders. Ball Valves, Plungers, Rod Boxes, Valve Cages, Valve Caps and Gland Nuts are Bronze.

HAYES PowerSprayer

Guaranteed 300 Pounds Pressure.
Large Capacity—Light Weight.
Short Turn Steel Orchard Truck.
Short Coupled—Light Draft.
Compact and Accessible—Steel
Construction—Built for
Enduring Service.

“The Sprayer that Really Sprays.”